Preview Edition October, 1958

MANAGEMENT *and* BUSINESS AUTOMATION

Unions and the Automated Office

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Up From the Abacus

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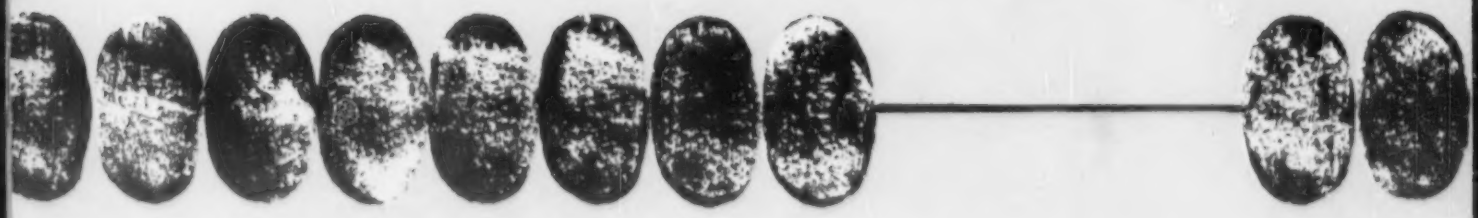

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MANAGEMENT *and* BUSINESS AUTOMATION

October, 1958
Preview Edition

concepts **methods** **trends** **effects**

Reporting to management on new ideas, developments, applications, results, and the human impact of office automation in all areas of commerce, industry and government.

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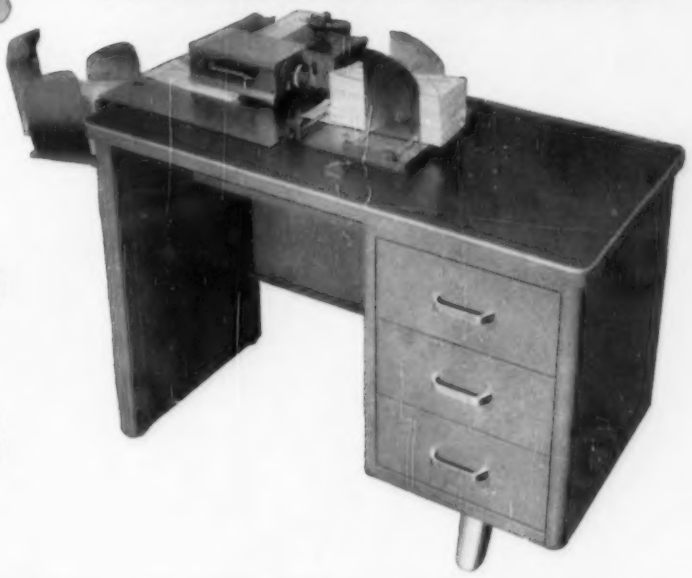

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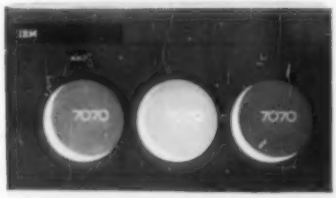

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Lester E. Hill
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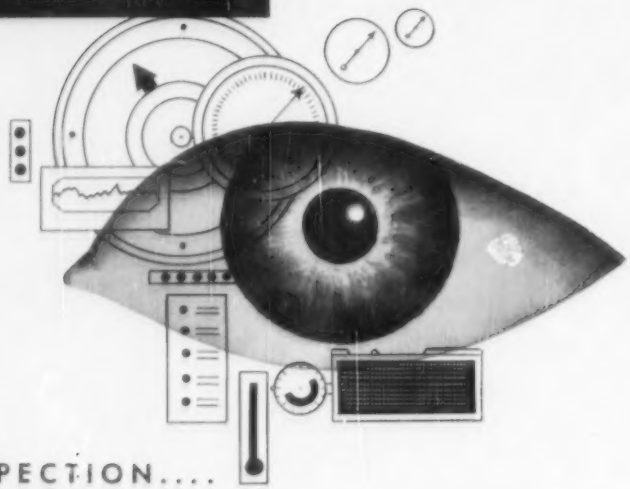

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NEW CONCEPTS IN PRACTICAL OFFICE AUTOMATION

For More Information Circle Reader Service Card No. P-59

Automation Arrives and—

James Hoffa Eyes The Office Worker

By Arnold E. Keller

THE WEALTH, power and politics of Jimmy Hoffa's International Teamsters Union are quietly being marshalled for an all-out drive to organize the nation's white-collar workers. Rapid increase of automation in the business office and continuing publicity regarding its job replacing potentials appear to be the "big guns" Hoffa will use to break the barrier into the office area—traditionally closed to union activity. As Hoffa puts it: "More and more the work of the white collar employe is being downgraded. The machine is invading the office, and as a result, office work is production these days. Also, increasing automation of clerical jobs is giving office workers job security jitters."

This sudden interest of the Teamsters' boss in the office employe is better understood when one realizes that the white collar group now constitutes nearly half of the total work force presently unorganized. Of the approximate total of 18 million white collar workers, the clerical group—estimated at about 8.5 million—accounts for 47 per cent. The white collar worker represents about one-third of the total work force and the Labor department estimates that by 1975, clerical and sales employes will make up the largest proportion of the labor force.

Hoffa wants to pluck that plum for his Teamsters' pudding and the "threat" of automation to the office worker will be the issue through which he hopes to work his way into the office orchard. As one teamster official put it: "The two (teamsters and white collar) would give us a powerful

The Office Employes International Union makes office automation a fighting issue, demands a thirty hour work week and seeks more members. Hoffa, aware of the 8½ million potential membership, offers to help.

bargaining tool. In a walk-out we could tie up the entire internal operations of a company as well as the transportation."

Hoffa's move to the "office" was first revealed last May when he dispatched his top officer, Teamsters Executive Vice President Harold Gibbons, to Phoenix, Ariz., where the Executive Board of the Office Employes International Union was in session. Gibbons presented OEIU President Howard Coughlin with a personal letter from Hoffa outlining his views on a combined organizational effort.

The Office Employes International Union was chartered on January 8, 1945 by the AFL-CIO, exclusively for the organization and representation of office and clerical workers. The union has about sixty thousand members (less than one per cent of the nation's potential) and has been plagued by jurisdictional disputes with other affiliates, who prefer to treat the office worker as part of their own industry group. Since the OEIU lacks both manpower and cash to support effective organization drives and receives little but sympathy from the AFL-CIO, it was only natural that the Hoffa proposal aroused considerable enthusiasm among OEIU members.

Hoffa said in his letter to Coughlin that the number of white collar workers will rise as the character of the labor force changes due to automation and other factors—constituting an ever-increasing threat to "the standards we have won for our members." Hoffa predicted that organization of office workers would double the size of the labor movement and emphasized that the two organizations had much to accomplish through "joint effort and cooperation."

"The white collar worker needs union protection and badly," Hoffa went on to say. "They are beginning to realize that you can't eat or wear 'prestige,' and it does not pay the rent or help meet installment payments." Hoffa estimated that "prestige" costs the white collar worker anywhere from $10 to $35 a week in lost salary. He pointed out that wage and other advantages formerly enjoyed by the office and clerical worker have all but disappeared as unions have steadily won new gains for the manual, or "blue-collar" worker.

On Tuesday, May 20, the Executive Board of the OEIU voted unanimously to accept the offer of the Teamsters, jubilant over the prospects of Hoffa's 1.5 million members and $41 million treasury being thrown behind a joint organization drive. Hoffa named Gibbons to personally implement the Teamsters' end of the program.

The only dark spot on the otherwise bright OEIU horizon appeared when the AFL-CIO Executive Council warned member unions against making any pacts with Hoffa. It is doubtful that the warnings will deter the OEIU from proceeding with the Teamsters offer, though there may be a secrecy lid clamped on the combined operation until the situation cools a little.

Both Coughlin, OEIU president, and Henderson B. Douglas, director of organization, are veteran labor organizers and have spent many years in the white collar field, one of the most difficult in the labor movement. The office worker has traditionally ignored union overtures and labor leaders have offered various speculations as to the reasons.

The late William Green, who was AFL president when the OEIU received its charter, thought the difficulty lay in the failure of the worker to comprehend the importance of mobilizing the economic strength of office workers into one solidified movement. Green theorized that the workers depended on what they considered their personal outstanding qualifications and for that reason they hesitated to join with others.

Present AFL-CIO President George Meany holds that the white collar worker has been a victim of propaganda for many years. "The boss always tells the worker that the union is not for you people," said Meany in a speech on white col-

"A lot of people will lose their jobs."—*Coughlin*

"Daddy's job has been eliminated by an electronic brain."—*Douglas*

HOFFA SPEAKS →

lar organization problems. The boss says, "It is all right for the fellow who works in the factory or drives a truck, but the union is not for the office workers. You people are above that sort of thing."

Walter Reuther, the number two man in the AFL-CIO, points out that the white collar worker, because he comes from a slightly different social and cultural background, has always felt he was above the need for a union.

"The worker feels that unions are for people who wear blue shirts and get their hands dirty," said Reuther who saw some justification for this belief in the early days of the struggle to build unions. "The white collar workers breathed the rarified air of the front office and worked in proximity to corporation executives who had real security," he said, "and they believed that by some process of osmosis, this would rub off on them."

Speaking at the Seventh Convention of the OEIU, held in Minneapolis, Minn. in June, 1957, William Kirchner, representing the AFL-CIO director of organization, summed up the problem in this fashion: "I think that generally we can say there is an unusual artificial atmosphere in the employment of white collar workers and it is from this sort of atmosphere that the problems we run into start. The tendency of white collar workers to trade beefsteak for prestige and to substitute individualism and independence for security and stability, are generally the things that represent problems for us."

But whatever the problems of the past, OEIU officials feel that the automation issue will prove the "Achilles heel" of the white collar force. Douglas, OEIU organizing chief, stated that the union is deeply concerned with the effect automation will have on the daily lives of the office and clerical employes. He emphasized the responsibility of the union to its members as stated in Article Two of the OEIU Constitution:

"The International Union shall be devoted and dedicated to promoting, protecting and championing the legitimate struggles of office and clerical workers toward achieving economic well being, their general welfare and rights as workers and citizens."

To illustrate the perils of automation to the office worker, both Douglas and OEIU President Coughlin give wide and constant publicity to the "ERMA" installation of the Bank of America. They cite that the bank's electronic system will eventually replace close to 3,000 people. They frequently quote an article in the now defunct Collier's magazine which stated that, "The office of the future will probably contain a fleet of machines tended by three or four people, with the machines doing all the paper work. Stenographers, typists, stock clerks, filing clerks and bookkeepers will have disappeared." They also cite a utility company in the Midwest which estimates that the installation of a large computer will replace 280 employes.

Actually, Coughlin and Douglas have dusted off and reused, again and again, some worn and tattered strawmen. The "ERMA" installation has to date been experimental and if it follows the pattern of other electronic systems, the net reduction in personnel will be zero. The Midwest utility company mentioned above turned out to be the Commonwealth Edison Co. in Chicago and officials there said that no personnel had been let go as a result of their computer program.

Douglas, in a speech stating the position of his union toward automation in the office, charged

"The machine is invading the office."

"The white collar worker is being downgraded."

"The office workers have job security jitters."

that there were an uncounted number of office and clerical workers, "most likely in the hundreds of thousands," temporarily out of work because the devices of automation have taken over their functions. He said that these workers seldom find the same work as they had been doing and even if they did, the shadow of the robot darkens the future.

"Although in the long run it is presumed that more jobs will be created by the introduction of automation than will be eliminated," said Douglas, "it is small consolation for a displaced office employe to read statistics to the effect that more employes are at work building and servicing electronic equipment, when he is out of work and his chances for reemployment are almost non-existent."

"Statistics prove many things," Douglas went on, "but they do not ease the burden of paying rent, buying the groceries, or explaining to a child that she cannot have a new dress because daddy's job has been eliminated by an electronic brain."

Coughlin is less pessimistic than his top aide. "I do not subscribe to the view that dire things lie ahead," he says. He points to automation in the factories which has existed for some years without disastrous results. He does believe, however, that there will be serious problems caused by the introduction of automation in offices. Many individuals who have spent their lives acquiring certain skills and have come to believe implicitly in their own indispensability are in for a rude shock, according to Coughlin. They will see machines do in seconds work that takes them days and weeks to accomplish. They will see machines replace the jobs they and their co-workers have come to feel are their permanent niches in the office world. A lot of people will lose their jobs. A lot of individuals will be forced to acquire new skills. There will be many new responsibilities placed on the employers of our country.

At the last OEIU convention in June, 1957, Coughlin, now in his third term of office, took official recognition of the problem before the delegates. "For some time now," he said, "we have noticed inroads of automation to a relative degree in the various offices under contract to the OEIU. In most instances the large machines, such as Univac or the IBM 700 series are used primarily in the very large companies. However, the smaller computer is getting into the scene. It has been said by experts that these computers will have the effect in the office similar to bulldozers in the construction field."

Coughlin told the delegates that he had heard people say that "certain machines in their offices have performed in one day, the work previously done in two weeks or a month by more than one employe." He said that only one person was needed to operate these machines.

Delegates were warned by Coughlin to give serious consideration to the protection of the membership as far as automation is concerned. "Under no circumstances," said Coughlin, "do we oppose automation." The reverse is true, he said. In Coughlin's opinion, the automation processes will eventually bring about a more prosperous United States and Canada.

Coughlin emphasized that it was necessary for the union to introduce clauses that would protect dislocated personnel. It was further necessary, he said, "to insist on clauses that would guarantee

Continued on page 55

Nerve center of the huge system is run by Frances Flaherty, chief programmer, and her assistant. The console unit can communicate with and monitor all other units in the system. . . . A line of file units (opposite page) handles the magnetic reels of tape that feed data into the system and record already processed data. More than half a million punched cards would be required to digest the 37 million decimal digits that one reel is capable of storing.

Boston's First National Goes Automated—With Teamwork

Bank, employes, and customers all benefit from this setup, reportedly the largest single electronic system in the world today

WHEN the First National Bank of Boston recently put into operation its two million dollar Datamatic processing program—reportedly the largest single electronic banking system in the world—it demonstrated dramatically the wisdom of total teamwork in the process of automating an office.

Culminating a remarkable two-year preparatory program on the part of the top executive staff of the bank—the oldest chartered bank in the United States—the system rolled into operation less than two months after installation, and less than two years after its inception.

This accomplishment is a tribute to the teamwork approach instigated by the bank's president, Lloyd D. Brace.

"The people we want for this program," said Brace at the outset, "are the ones who are too busy to be spared." He then took his own top assistant, Senior Vice President Roger C. Damon, released him from all other duties and put him in charge of the entire data processing program.

Results of the system show the effectiveness of the First National's approach. The Datamatic computer now processes the bank's 30,000 special checking accounts. And it will soon take on the corporate trust and transfer operation

which involves maintaining and updating of ledgers for more than 765,000 individual accounts, as well as preparing and issuing some 2,500,000 dividend checks yearly.

A third assignment of the system will be to handle more than 138,000 items in the bank's loan accounting department.

No stranger to automation, the bank installed its first punched card equipment in 1931. The First's present computer program was conceived in 1954, when Brace saw the need for developing faster methods of bookkeeping so that the bank would not be overwhelmed by its own paperwork. He estimated that by 1960, the First would be processing more than 54 million customer checks—and with each check handled on an average of four times, the total would exceed 216 million.

This prompted Brace to authorize an exhaustive study of electronic data processing equipment. The man selected to make the study was Benjamin W. Taunton who had been closely associated with machine accounting at the bank since 1953.

Taunton's first step was to enroll in a special course in "programming and operation of digital computers" at the Massachusetts Institute of Technology. Next he studied available equipment and visited manufacturers to tap their future plans in the computing field.

A year later, he reported back to Brace, convinced that a large, general purpose electronic data processing system would be an economic feasibility for the First National Bank. He also said that further study of the bank's procedures was needed to obtain basic figures on document volumes and to chart the peaks and valleys of the various operations.

In 1955, Taunton added an assistant to his one-man staff, and together they began to isolate ideal applications.

Three were selected — deposit, corporate trust, and loan accounting. Taunton soon saw that deposit and corporate trust accounting represented the extremes in data processing problems. More than 48 per cent of deposit's hundred thousand accounts were active every day, while little more than half of one per cent of corporate trust's 765,000 items showed daily activity.

Taunton also found that the deposit operation would lend itself to a fixed record length, while

As part of the "total teamwork" approach, bank employes attend a two week course on the principles of the Datamatic system.

System procedures are worked out by a 27-member programming staff, selected from the First National's own personnel.

corporate trust would not—an important consideration in tape storage. Deposit accounting was also seen to represent the largest single area of clerical effort and thus involve the job of constant updating, while trust accounting involved considerable alphabetic data and little arithmetic.

The First National then decided upon deposit as its primary target, with corporate trust and loan accounting following close behind. In choosing deposit accounting, the bank realized that complete automation of the operation would be impossible until electronic processing of paper checks became a reality. But since 30,000 of the deposit accounts were being handled as "special checking accounts" using punched card checks, bank officials felt this area would be an excellent starting place.

Taunton's next step was to present the bank's system requirements to computer manufacturers all over the country.

"Only three of the computers we studied were actually designed for business data processing," Taunton recalls. "The others were primarily scientific machines." He also found that internal speeds in most of the equipment were comparable, but that input and output speeds varied considerably.

Taunton studied the available and future equipment of leading manufacturers for six months. Then he recommended that the First National sign an order for a Datamatic 1000 Computer System (a product of the Datamatic Division of Minneapolis-Honeywell Regulator Co., a comparative newcomer in the business automation industry).

The bank demonstrated its confidence in Taunton's judgment by placing the order, even though at the time, Minneapolis-Honeywell had not built a single computer system.

Now that equipment was ordered and initial applications decided upon, it was time for Brace's "total teamwork" program to move into action.

First, Brace and the other top officers attended a two-day course on the principles of the Datamatic system. Then department managers and supervisors went to school for two weeks to study the system and its adaptation to the applications in greater detail.

The edict of President Brace—"take the ones who can't be spared" — was followed to the letter in selecting personnel to attend a six-week programming school. Regardless of their "indispensability," those who could offer the most to the program went to the session.

Next step for the bank was to organize three teams of programmers, one for each of the applications. On each team was a member of the systems department and a representative from the machine accounting department. Other team members included operating personnel, who knew the most about the applications involved in the program.

Taunton and his staff, now expanded to five, directed these teams, and, at the same time, revised procedures and made detailed analyses of work flow through the bank.

Another class was held—this one for all bank personnel who were even remotely involved in the operation — at the American Institute of Banking in Boston.

Plans for housing the huge system went hand in hand with training and programming. An ideal location was decided upon—an area adjacent to the machine accounting, mailing and duplicating departments. Three glass-paneled rooms with a total of more than eight thousand square feet were constructed to house the units.

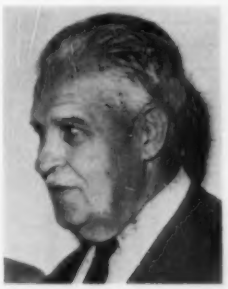
In addition, the bank installed an observation room to provide a clear bird's-eye view of the entire operation. Sixty tons of air conditioning were necessary to maintain uniform temperatures of around 74 degrees.

A complicated part of the housing problem was the 146 miles of coaxial cable running in special "accessibility" channels under platforms on which the equipment was mounted. Another 2,300 square feet of space was set aside to house the programming staff.

Components began to arrive in April, 1958, and the system was assembled and ready for action on May 29. Program testing started on

Continued on page 36

General Groves On Automation



"Automation in the office is nothing new. It started when man began to count his fingers."

★

"So often, timidity takes over when . . . automation . . . is brought up. This springs from the human being's ever-present fear of change."

★

"Automation is nothing to fear. Basically it is a very simple thing."

★

"The basic argument against automation . . . is that people may be thrown out of work."

★

"Automation in the office will have to be the rule rather than the exception for any management which expects to keep ahead of competition."

★

"Decision-making by rule of thumb is no longer feasible."

★

"Modern management . . . has to make decisions based on speedy and accurate information. The solution is automation in terms of complete and concise data available . . . before the decision is made."

★

"One of the by-products stemming from this age will be more and more leisure time . . ."

★

"Perhaps the most significant benefit from automation . . . is that tomorrow's decisions can be made today."

★

Lt. Gen. Leslie R. Groves, vice president of Remington Rand, made the above remarks on automation at a luncheon in Chicago announcing Management and Business Automation.

Business Show Recalls Past Era

ALTHOUGH the word "automation" was not coined until about 10 years ago, seeds of today's electronic surge were being sown fifty years ago—in 1908.

For a few short days, the typical business establishment of that bygone era, with all its characteristic flavor and gusto, may be seen again —in the theme area of the 1958 National Business Show, from October 20-24.

Executives from all over the world will attend, and theirs will be a first-hand impression of the tremendous advances made in office equipment during the past fifty years.

Many of them will look upon the 1908 section with amusement. And some will pause nostalgically, remembering "the good old days"—before giant calculators with their whirling dials, flashing lights, and fancy prices.

Back at the National Business Show in 1908, the emphasis was on typewriters, and gigantic electric signs above the booths told visitors who the manufacturers were—Associated, Elliot-Fisher, Hammond, Junior, Royal, Secor, Smith, and Underwood.

These firms featured folding typewriters ("only weighs a few pounds, yet folds up like a jackknife"), typewriters with automatic carriages and the "smallest typewriter in the world."

But there were other "newfangled contraptions" exhibited at the 1908 show—

- A "peerless pencil whittler."
- An automatic closing ink well.
- A commercial talking machine.
- An addressing machine that could print five hundred to a thousand addresses a day.
- A computing machine that could add, subtract, multiply and divide.
- A duplicating machine for five dollars.

Fifty years later, these angular, clanging devices are gone, replaced by the silent, streamlined components of data processing systems which run at super-speeds and have brought a new era of glamour to the office.

No longer on the 1958 scene are the side attractions that were necessary to interest visitors at the 1908 National Business Show.

Most popular of these was the annual International Typewriter Contest, won in 1908 by Rose Fritz who achieved "the remarkable speed of 87 words per minute" and took home the coveted Offices Appliances $1,000 silver trophy.

Gone are the vocalists who appeared at nightly band concerts and often competed with 1908 exhibitors for the attention of visitors. And the refreshment concessions that plied executives with pop and pink lemonade—these are "ancient history" too.

There were only eighty exhibitors at the 1908 show. This year, more than 390 firms will occupy two floors at the New York Coliseum.

It is true that fifty years have seen many changes, both in office equipment and in National Business Shows. But some things are unchanged:

The purpose of the show—to provide a "supermarket" where business executives can look over the world's largest array of up-to-date office equipment.

And the problems faced by equipment manufacturers—to cut time, reduce errors and provide businessmen with today's information today.

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"The roads you travel so briskly lead out of dim antiquity, and you study the past chiefly because of its bearing on the living present and its promise for the future"

—Lt. General James G. Harbord

From Abacus To Electronic Computer

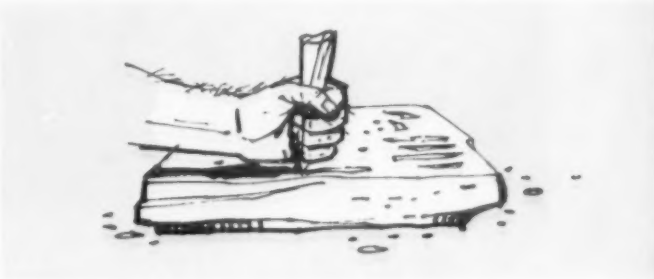
EFFORTS of man to count and record have left a trail of accomplishments winding back to the earliest days of civilization. As one would expect, few of the original results have withstood the onslaught of inevitable progress. Yet they were responsible for the progression of thought and achievement that has marked each passing century.

The abacus stands alone as the one creation of the ancients that is still used for counting in our world today. Though five thousand years old, it is still popular in many parts of Russia and the Far East—not to mention in America's own Chinese laundries.

The story of man's efforts to improve on the abacus and other primitive methods of accounting is an exciting one, with many heroes and many heartaches.

Jacquard, the Frenchman, brought the "stored program" idea into being in 1800, when he developed punched pattern cards for the mechanical loom. This use of control cards punched with holes was to influence many subsequent inventions for processing data. One was not long in coming. In 1812, Charles Babbage, noted English mathematician, received a $75,000 grant from Parliament and started work on an automatic calculator called a "Difference Machine." The device was to compute mathematical tables by reducing the calculations to a series of additions, and the results were to be printed out automatically.

Parliament's patience and money ran out, but Babbage continued to spend his own modest fortune in an effort to perfect the machine. In 1842, with the machine half-finished, he abandoned the idea, but only because he had a greater inspiration. This time the idea concerned an "Analytical



Engine," a general purpose automatic digital computer which would deal with any mathematical equation and would have its sequence of operations controlled by punched cards. Babbage died in 1871 at the age of 79, failing to perfect either of his inventions, and the two half-finished machines stand today in the Science Museum in London.

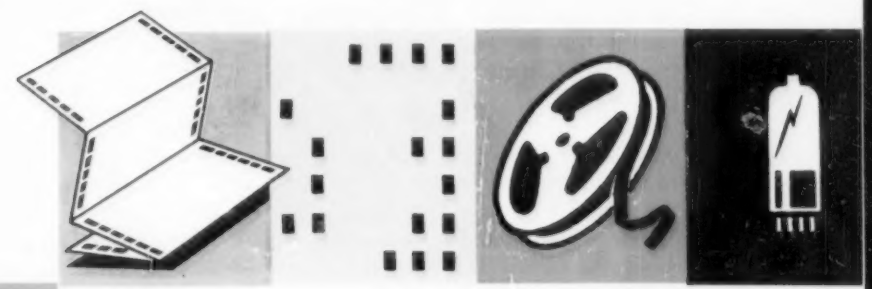
Long before Babbage, others had been intrigued with the idea of automatic calculating. Though he lived but 39 years, Blaise Pascal, a brilliant young French philosopher and geometrician, found time in 1642, to conceive and build the first mechanical calculating machine. His invention could perform all four arithmetical operations and was a forerunner of most of today's calculating machines. The next recorded improvement to Pascal's machine appears to have come in 1694, when a German named Leibnitz developed the stepped drum or "pinwheel" calculator.

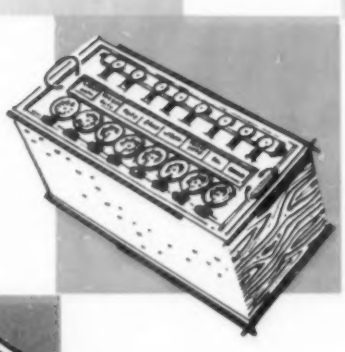
It was several centuries later before recognition of a commercially practicable calculator became a reality and the honors went back to the French—Charles Thomas of Colmar perfected the arithmometer in 1820.

By this time, American inventive genius was beginning to make itself known. This was to lead the country to complete domination of the business machine industry. On January 10, 1843, the United States Patent Office issued the first patent on calculating devices to a J. P. Smith of New York. Smith's invention made use of days and months to eliminate referring to an almanac for calculating time in interest problems.

In 1850, the first United States patent for a "key operated" calculator was issued to D. D. Parmalee. His crude device had no carrying mechanism and was limited to addition of one column at a time. Between 1843 and 1870, a myriad of patents covering calculating and adding devices were issued. Much to the sorrow of the recipients, most of the patents ran their allotted time, 17 years of patent life, and expired, before any of the successful machines made their appearance on the scene.

A Chicagoan, Dorr E. Felt, was responsible for the first great success of a key-driven machine in the United States. He patented the now famous Comptometer in 1887, and, with his partner Tarrant, became one of the leading manufacturers of calculating machines. About the same time, Frank S. Baldwin patented a recording calculating machine which used roll paper and applied inks by means of a ribbon. His patents became the property of the Monroe Calculating Co., in 1912.





Every day seemed to bring some new development, but it remained for a 21-year-old bookkeeper in a bank counting room to drop the bomb-shell. His name was William Seward Burroughs, a young man with mechanical instinct. He believed he could invent a machine that would list and add and was convinced that it would fulfill a genuine need—to serve not only the thousands of bank clerks around the country but also the other rapidly expanding areas of commerce and industry. Burroughs gave up his bank job to concentrate on the invention, and eleven years later, in 1891, he introduced the first practical adding and listing machine. The device was manufactured in St. Louis by the American Arithmometer Co., a firm that Burroughs had formed with some $300,000

of speculative capital. The machine was not an overnight success. In fact it appeared as though the whole venture might turn out to be a colossal blunder. All of the trouble centered around the machine handle. The fifty St. Louis merchants who had been asked to try the machines on a trial basis had difficulty in putting just the right amount of tension on the handle, so that machines either locked up or produced fantastic answers. There were other complications too. As John S. Coleman, later a president of the Burroughs Co. put it—"Matters weren't helped much by reports from Albany. A gentleman of that city had persuaded the company to send him a machine to sell, but once he had it he couldn't bear to part with it. Instead, he was carting it about in a wheelbarrow from saloon to saloon, betting on its accuracy, and winning every time. He had the hang of the handle."

Burroughs licked the handle problem by locking himself in his workshop for 48 hours and devising a cylinder and plunger arrangement—the "dash-pot"—which guaranteed uniform operation of the working mechanism regardless of how erratic the pull of the handle. With this problem solved, the machine began to take hold in the business world and less than 15 years later, the Burroughs Adding Machine Co. was organized in Michigan with five million dollars of capital stock. Burroughs did not live to see this. He died in 1898 in the little town of Citronelle, Ala., when he was only 41 years old.

The seeds of man's mechanical ingenuity, planted in the 19th and earlier centuries, blossomed with fury in the 1900's. Most of the giants of today's business machine industry had their modest beginnings in the early days of the 20th century. Elliott-Fisher pioneered the bookkeeping machine system in 1904. Other distinguished names began to appear: Underwood, Remington, Sunstrand, Victor, Moon-Hopkins, and Marchant were just a few. While these men were interested in automatic aids to accounting, others were busy perfecting writing and printing instruments.

Certainly no machine was to have a greater impact upon professional, commercial and social life than the typewriter ("little brother of the printing press"). Originally conceived in 1714 by the Englishman Mill, the idea for the machine laid dormant until around 1830. At that time a William Burt, of Detroit, constructed what he called a "Typographer," with good results. His original machine was destroyed in the Patent Office fire of 1836. As interest was lacking, nothing further was done to produce it on a commercial scale. At least a dozen other inventors contributed to the final development of the typewriter but none marketed his invention until 1867, when Christopher Latham Sholes introduced the first model which was to become a commercial success. Sholes was almost discouraged in his efforts by another great inventor, Thomas Edison. Though only 21 years old, Edison's fame was already wide-spread and his advice and comments were sought by many. Sholes took a wooden model of the typewriter to Edison who made several in metal and succeeded in improving the key alignment. He was not very enthusiastic about the typewriter because he thought it too slow for practical purposes. Fortunately for Sholes, he disregarded one of Edison's few bad guesses and in 1873, the machine was put on the market by Remington.

Then typewriter developments came at a fast and furious pace. As early as 1904, there were dozens of manufacturers in the field. Two electric machines were on the market along with a countless number of standard models. The rapid progress brought with it more than a few fatalities. In the first 25 years of commercial development over eighty different makes of typewriters disappeared from the business world.

The typewriter increased the speed of writing and created the need for some method of preparing multiple copies. A. B. Dick was the first to solve this problem. Together with Edison, he developed and marketed the stencil and Mimeograph process in 1887. A few years later Joseph S. Duncan patented the Addressograph. In 1903, a Louisville typewriter salesman named Harry Gammeter, got the idea for the Multigraph Duplicator which was later to become a part of the Addressograph Corp.

Another development under way in the '80's was to be a major contribution to the American business scene. Two brothers had invented "Ritty's Incorruptible Cashier," a mechanical cash register. Their product found its way into a small general store operated by John H. Patterson in Coalton, Ohio, a suburb of Dayton. Impressed with the gadget, he bought two machines and 25 shares of stock. Patterson decided to sell both his store and the Ritty stock but couldn't find a buyer for the latter. While on a vacation trip, he ran into another merchant who used the cash register and was enthusiastic about its possibilities. His own faith reaffirmed, Patterson returned to Dayton and bought all the outstanding stock in the company for $6,500 and plunged into the cash register business under the name of National Cash Register Co. This was in 1884, and it brought him early fame and fortune. In the 1920's National Cash branched into other areas of accounting and bookkeeping machines.

Working in the Patterson organization was a young salesman who was soon to create an empire

Continued on page 56

Excerpt from OFFICE AUTOMATION SURVEY

The Main Problems Encountered with "Automation" Apparently Have Been Obtaining Adequate Personnel, Proper Scheduling and Educating Other Persons in the Company

The office automation problem reported most commonly by the firms contacted is getting and training personnel to operate the automated equipment. Another problem is that of proper programming and scheduling so that maximum use can be made of the equipment. A third significant problem is that of educating key personnel in the company about the uses of automated equipment.

(Conducted for The Office Appliance Company by Elrick and Lavidge, Inc., Chicago, Illinois)

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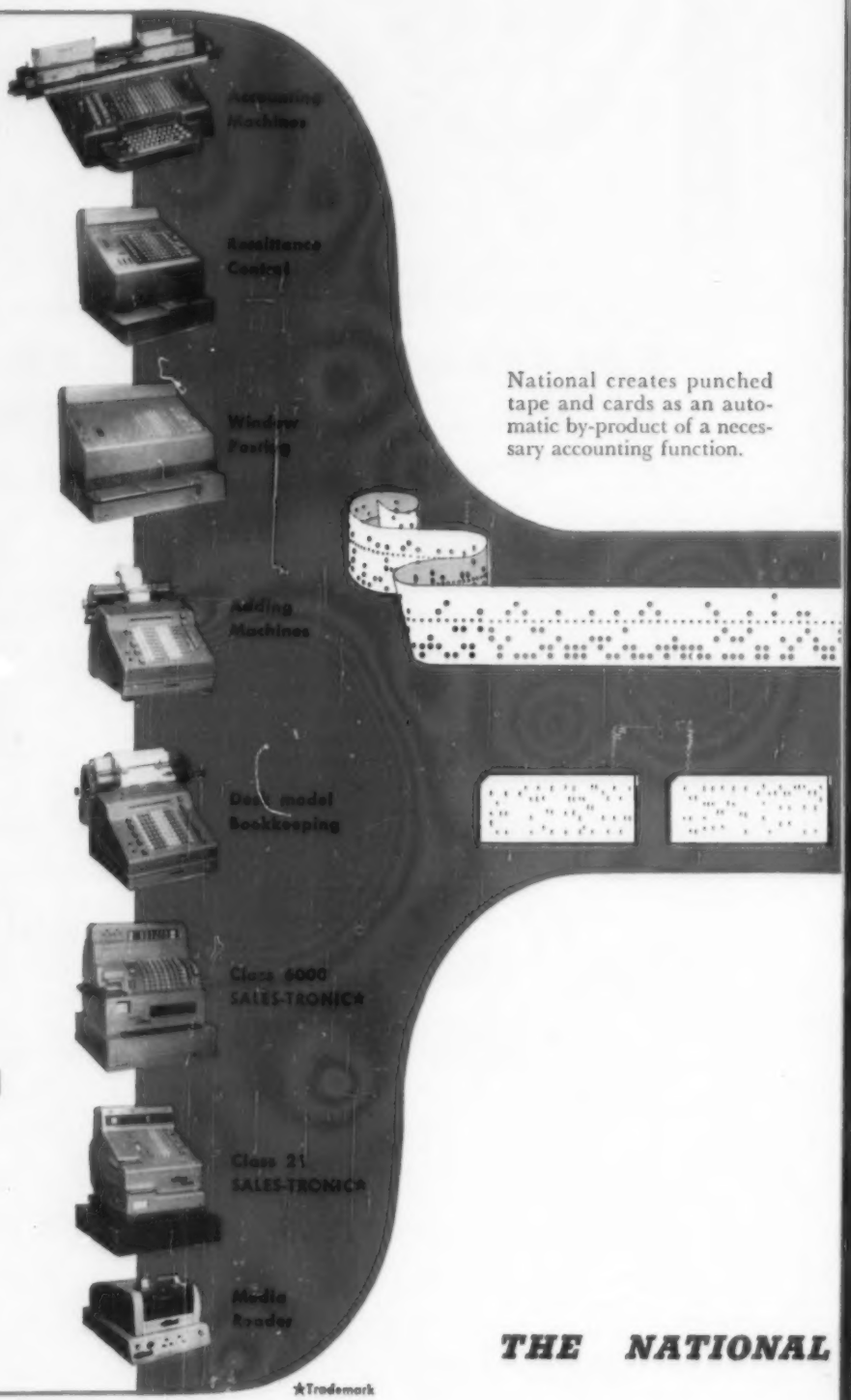

National creates punched tape and cards as an automatic by-product of a necessary accounting function.

*Trademark

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Automation

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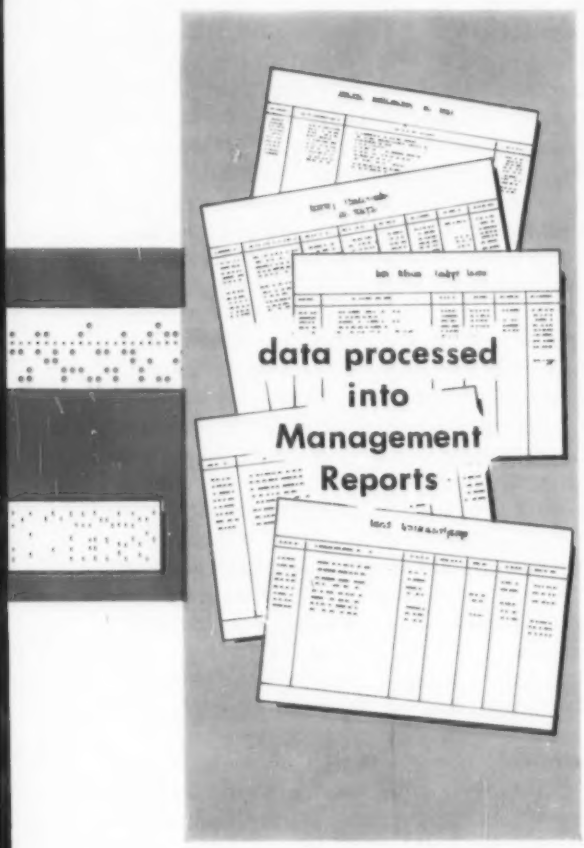
Here are 5 REASONS why...



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Making Copies

Higher quality and use of masters are main differences between this offset duplicator and most copying machines.

MOST executives find an aura of confusion surrounding copy making, mainly because there are more than a hundred different brands of copying and duplicating machines on the market today.

Among the false beliefs commonly held by top management is that somewhere in this mechanical potpourri is a panacea—an all purpose copying and duplicating machine rolled into one.

Some businessmen have been misled into thinking they have actually purchased one. But patient sifting of facts from fiction will reveal that there is still no one machine or process that can handle all of the various copy making requirements.

Some of the confusion comes from the problem of defining copying and duplicating. Webster's says they are synonymous. But in operation, they represent two entirely different processes. Copying means reproducing a document in its original form while duplicating requires a specially prepared master. Failure to fit the right process to the right job is not uncommon, and the cost of making unnecessary copies or using the wrong process may take a big bite out of profits.

In determining the most efficient way of processing copies, it is important to keep these two questions in mind: "WHAT are we going to copy?" and "WHY are the copies necessary?"

Don't try to satisfy the questions with the handy formula ". . . a copying machine for 1 to 10 copies, and a duplicating machine for more than 10." While there is an element of truth in this generalization, it is an over-simplification of the facts.

When obtaining answers to "What is being copied?" pay particular attention to the originating point of the documents involved. If the originals are from your own office—or if they are under your office's control—every effort should be made to create all of the necessary copies at the time of the original writing.

This can be done in many ways. Whether you use typewriters, billing machines or machine accounting equipment, the one writing principle will produce up to nine good carbon copies. Past objections to this type of copy preparation have usually concerned carbon paper. But recent improvements in quality and price of "no-carbon-required" paper have made its use for business forms an economic reality. The no-carbon paper has also eliminated one of the most unpopular tasks in the office—removing continuous carbon from multiple copy forms.

Good forms design and construction will eliminate many copy problems. An additional copy or two built into the form "just in case" will often prove a sound investment. Recent studies indicate that if an extra copy is required more than 45 per cent of the time, it is more economical to include the copy in the original form setup than it is to create it in a later operation. On the other hand, some copy requirements are more easily solved by creating a master at the original writing and preparing additional copies by using some duplicating process.

Duplicating has come a long way since the days of 1877, when A. B. Dick, then a young Chicago lumber merchant, turned his back on the forest and combined talents with Thomas Edison to produce the Edison Mimeograph. This machine broke the barrier of long copy runs and, since then, most people have come to associate duplicating with volume production. True, this is the area of top efficiency for the equipment, but demands of business automation have resulted in new and improved machines that provide efficient handling for short runs as well.

The three major duplicating processes are:

1. Direct (spirit type), which combines a chemical deposit master with an alcohol base fluid.
2. Offset, which uses paper or metal "mats" and prints copies with ink.

Executive's Guide to

Infra-red light and heat sensitized copy paper are used in this copy machine which can produce dry copies in less than six seconds.

Diazo offers flexibility in size and speed of copies; is adapted more for specialized operations than for general use.

Most copy machines use the photocopy process which can reproduce originals in about thirty seconds.

3. Stencil, which uses a thin fibrous sheet with plastic coating. Typewriter or stencil impressions cut openings through which ink is forced to allow printing.

A fourth process in the spirit category (Azograph, Chemograph, Transograph) is gaining popular acceptance for its simplicity and smudge-proof operation. It achieves complete cleanliness because color is not formed until fluid is introduced within the duplicator.

One method of duplication, the gelatin process, seems to have fallen from the good graces of modern systems people simply because it lacks the glamour associated with the automated office era. But in operations requiring copies of daily statistical reports limited to inter-office distribution, this low-cost, easy-to-operate hectograph process will top them all—though it requires hand operation, which may be heresy in some offices.

Whatever your choice of processes—and this should be decided only after a complete systems study—business forms manufacturers can include a suitable master as part of your forms construction. An important point to remember—the most economical time to plan for copies is before the original is prepared.

If the copy problem in your company centers around documents that originate outside of its boundaries, then without a doubt a copy machine will provide a satisfactory solution, though choice of equipment and process may be a difficult decision to make. Sales of copy machines and related supplies is expected to top $160 million this year and every week seems to find a new entry in the field. Again a thorough systems study is in order before the final choice is made.

The majority of copy machines sold today involve the photocopying principle. The original is transferred to a sensitized paper which, in turn, produces a positive copy in a damp-dry state. The entire operation usually requires about thirty seconds. Some machines are capable of producing up to five separate copies from one "matrix."

One machine uses infra-red light and heat-sensitized copy paper to produce a dry copy of an original in less than six seconds.

Still another process, called Diazo, requires a transparent original and uses an ammonia vapor or liquid solution to transfer the image to a sheet of coated paper. While Diazo equipment is available in the desk top size, it is more commonly used for a specialized operation or as part of a complete office system, rather than as a general purpose copying machine.

Xerography, a process using photography, developing powder and a fuser, is capable of making up to eight copies from one shot of an original. It can also create a spirit, multilith or offset master from an original document. Usually though, Xerography, or Xerox, as it is commonly known, is keyed to large printing and duplicating operations rather than to individual copy needs.

Another method of copying—and one of the most recent—is the Facsimile process. This involves electronic reproduction of originals, and, because of its ability to transmit over wire, it is essentially a communication device. However, it will also do an excellent job of creating stencils and offset masters and is particularly good for reproducing illustrations. Again, this is more of a specialized piece of equipment and not suited for everyday office copy requirements.

The majority of the copying machines have one thing in common—ease of operation. This has led some office managers, happy to be rid of the copy making responsibility, to locate the machine in a convenient spot, keep it well supplied with materials, and invite one and all. The invitation is usually accepted by the entire staff and the line to the machine may rival the one in front of the coffee dispenser. This spells trouble—and waste. Cost of the machine is minor compared to the

Copy Making Processes

Executive's Guide to

PROCESS	COPY SPEED	MAXIMUM NO. OF COPIES	EFFICIENT COPY RANGE
SPIRIT DUPLICATING	Up to 120 a minute	500	5 to 300
STENCIL DUPLICATING	Up to 200 a minute	8,000	50 to 5,000
OFFSET PRINTING	Up to 9,000 an hour	With paper mat—1,500 With metal mat—25,000 and up	With paper mat—1,000 With metal mat—200 to 25,000
GELATIN	Up to 15 a minute	50	10 to 30
PHOTOCOPY (TRANSFER)	Average 1 a minute; some up to 5	20	1 to 10
PHOTOCOPY (DIRECT)	Up to 6 a minute	20	1 to 10
DIAZO	Up to 6 a minute; Depends on equipment size	Unlimited	1 to 15
XEROGRAPHY	3 minutes per copy	Unlimited	1 to 6

cost of supplies, and if the machine in your office is serving the employees as a printing press, you can be sure your copy costs have sky-rocketed. To double-check your own operation, make an after-hours spot check of the wastepaper basket alongside the machine. The contents may indicate a need for supervision of the copying procedure.

Copy machines vary in speed and while a "stop watch" test will accurately determine which machine is the fastest, further investigation may point to other limitations that offset the speed advantage. For example, the infra-red type of equipment has difficulty reproducing certain colored inks. Some machines will not reproduce on anything but white copy paper, and, on others, the size of copy is a limitation. Some copies provide a poor writing surface and others yellow with little age. The damp-dry condition of copies will disqualify certain equipment when you need fast distribution of copied information. Remember that no copy machine can turn out a copy in printed colors. It is more than likely that, unless your entire office procedure can be built around one specific process, such as Diazo or Xerography, you may need several types of copy machines to do the most efficient job.

Though mentioned second, the question of "Why are the copies necessary?" is certainly not least

FLOW CHART OF SPECIAL CHECKING ACCOUNT APPLICATION

Copy Making Processes

ESTIMATED COST PER COPY	COPY APPEARANCE	ADVANTAGES	PRICE RANGE
¼¢ up, based on volume	Very acceptable	Speed, low cost, multiple colors in one run, reusable masters	$12 to $2,639
½¢ up, based on volume	Wide variance; depends on stencil preparation	Long runs at low cost, reusable stencils	$11 to $1,750
Under 1¢; less with volume	Excellent	Tops for volume and quality; Reproduces almost anything	$700 to $4,000
½¢	Acceptable for inter-office use	Low cost, simple operation	$10 and up
3 to 10¢	Excellent	Acceptable reproduction of most any original, simple operation	$80 to $800
6¢	Wide variance; depends on operator	Speed, dry copies, relatively inexpensive	$300 to $400
1 to 2¢	Usually black or blue print	Long-lasting master, inexpensive, fast, machines for various form widths	$400 to $7,500
9¢; less for 8 or more copy runs	Very good	Enlarges, reduces, best for making masters for other processes	Varies depending on number of components. Can be rented

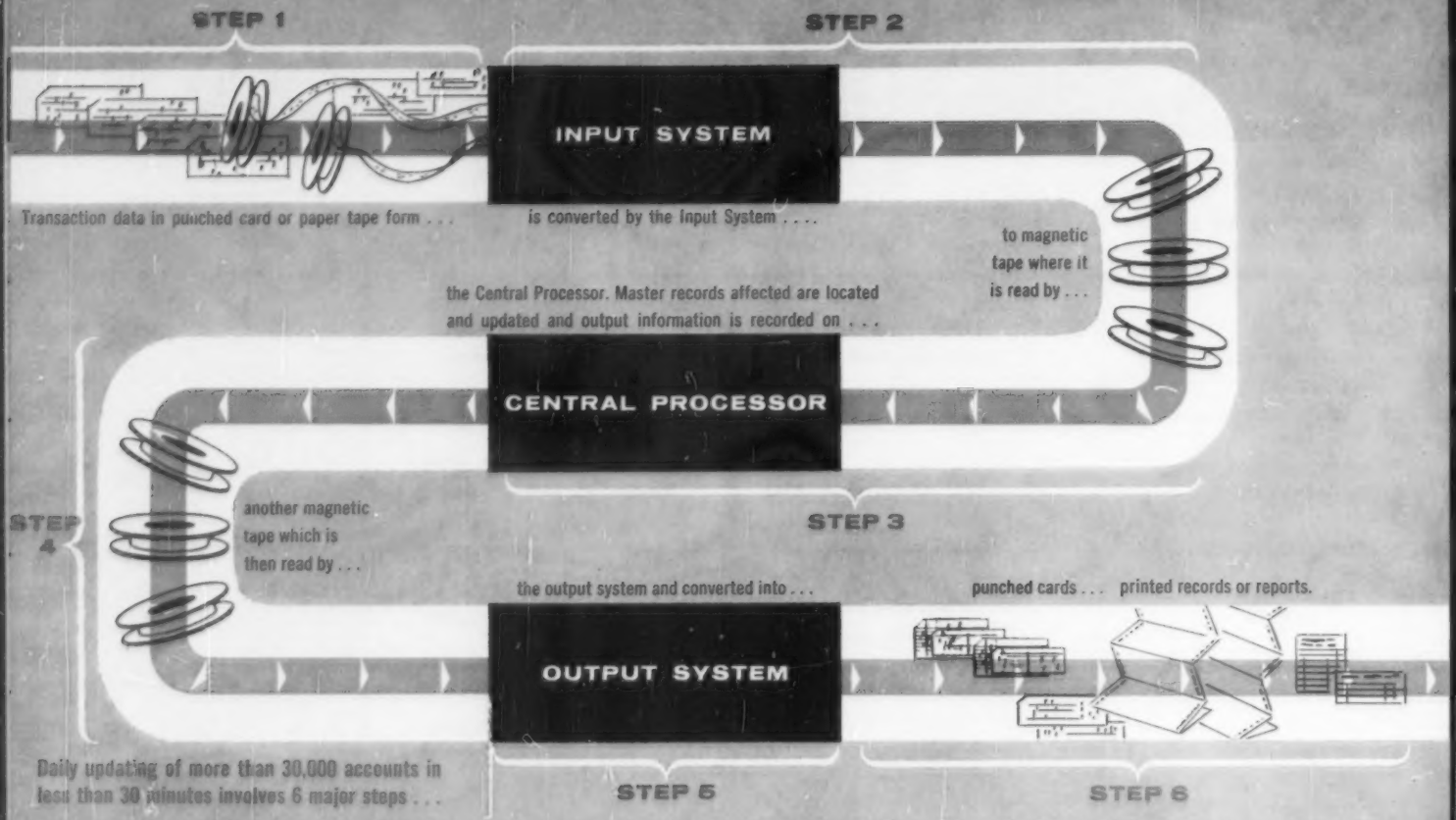
M.B.A. RESEARCH

in importance. Making copies of everything from office memos to news items can become a habit—a costly habit. The copy machine is utopia to the office addict who insists on stuffing files with every paper scrap that touches his desk. Try keeping a "reason" log on the copy machine for one week. You may find the number of copies reduced considerably. If the copy machine is working overtime it may indicate that your system staff had better review some of the procedures. Keep emphasizing the "why" and you'll probably see some dramatic results.

Have your staff keep an eye on other methods of preparing copies. Don't overlook the possibilities of such systems as microfilming. One firm, in need of an extra copy of source documents for preparing input for the data processing department, turned to microfilm. Key punch operators, punching from film readers, exceeded previous production. The secret: a foot pedal automatically brought each document into focus eliminating the use of a hand to turn and shuffle papers.

A cut in paper-work costs may, in some companies, be the last place to look for an increase in profits. But in most companies it is the best place to look. A comprehensive review of your company's copy making procedures may save you time and money.

FLOW CHART OF SPECIAL CHECKING ACCOUNT APPLICATION


STEP 1
STEP 2
INPUT SYSTEM
Transaction data in punched card or paper tape form . . .
is converted by the Input System . . . .
to magnetic tape where it is read by . . .
the Central Processor. Master records affected are located and updated and output information is recorded on . . .
CENTRAL PROCESSOR
STEP 4
another magnetic tape which is then read by . . .
STEP 3
the output system and converted into . . .
punched cards . . . printed records or reports.
OUTPUT SYSTEM
Daily updating of more than 30,000 accounts in less than 30 minutes involves 6 major steps . . .
STEP 5
STEP 6

STEP 1 • Operators complete the preparation of the checks and deposit slips by punching additional codes on each to indicate the amounts.

STEP 2 • The checks and slips are then fed into a converter which converts their data into machine language and records it on the input or "transaction" tape. (Subsequently, all checks and slips are microfilmed.)

STEP 3 • Connected to the central processor are the master file tapes containing complete information as to the current status of every one of our Special Checking Accounts. As the input tape feeds into it, the central processor searches the master files to see which of the accounts are affected by the day's transactions. Every time it finds one, it electronically subtracts the amount of the check from, or adds the amount of the deposit to, the account's old balance, and establishes the new balance. (One full cycle like this takes a mere fraction of a second.) Thus after the input tape has passed through the central processor, the master files have been completely updated, ready for the next day's transactions.

STEP 4 • The information needed for balancing the Bank's books for the day is simultaneously recorded on the output tape by the central processor.

STEP 5 • The output tape passes through the output converter, converting its information from machine language to printer or card punch signals.

STEP 6 • The signals then feed into the printer or the card punch (or both simultaneously) and emerge as the familiar punched cards, or as various printed records and reports.

M.B.A. RESEARCH

Teamwork Continued

June 2, and the first trial run of "special accounts" was made about the middle of the month. On July 14, less than two years after the equipment order had been placed, the new system was in operation.

The present chief programmer for the system is Miss Frances Flaherty, a former school teacher who joined the bank's machine accounting department shortly after Pearl Harbor.

Miss Flaherty and the other personnel working on the system were bank employes whom executives felt would be especially suited for their work. Aptitude tests, thought by many to be indispensable in determining aptness for mathematics and mechanical operations, were not used by the bank. The new system replaced about 140 people, and all of them were absorbed into other areas of the bank.

"The bank has never looked at the system as a means of reducing personnel," said Senior Vice President Roger Damon.

Staff for the new system includes 27 programmers, 23 persons to assist in conversion operations and 10 machine operators to provide the necessary manpower. Monthly rental for the equipment is forty thousand dollars. In addition to the Datamatic 1000, the bank has 25,000 points of IBM equipment.

Ben Taunton, the man largely responsible for the success of the program, is now the assistant comptroller. He looks forward to even greater accomplishments for the huge electronic system

—electronic processing of all the bank's checks.

The benefits of the system? According to Roger Damon, there are three big ones:

For the customers—a faster, more accurate and more economical way of processing their business.

For the bank—a speedy flow of data so vital to its daily operations, and a new standard of accuracy and reliability.

And for the employes—a release from tedious, time-consuming and repetitive paperwork, and an opportunity to develop new skills leading to higher positions.

MBA'S

Calendar

Of Meetings

October 13-15—International Systems Meeting, Hotel Penn-Sheraton, Pittsburgh.

October 16-18—The Institute of Management Sciences Annual Meeting, Philadelphia.

October 19-22—Controllers Institute of America, Chalfonte-Haddon Hall, Atlantic City.

October 20-21—Univac Users Conference, Boston.

October 20-24—National Business Show, The Coliseum, New York.

October 22-24—American Management Association Annual Office Management Conference, Statler Hotel, New York.

October 22-25—The National Businessmen's Exposition, Los Angeles.

October 24-25—American Records Management Association, Essex House, New York.

October 29-30—Fifth Annual Computer Applications Symposium, Morrison Hotel, Chicago.

October 30-31—Fourth Electronics Business Systems Conference, Olympic Hotel, Seattle.

November 3-5—National Association of Bank Auditors and Controllers, Statler-Hilton Hotel, Dallas.

November 3-7—American University Fifth Institute on Electronics in Management, Washington, D. C.

November 17-18—Federal Government Accountants Association's Eighth Annual Symposium, Washington, D. C.

November 28-December 4—National Physical Laboratory Symposium and Electronic Computer Exhibition, London, England.

December 3-5—Eastern Joint Computer Conference, Bellvue Stratford Hotel, Philadelphia.

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For short runs and quick deliveries, *Hano Imprint Stock Tab* is best

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For More Information Circle Reader Service Card No. P-63

New Products For Business Automation

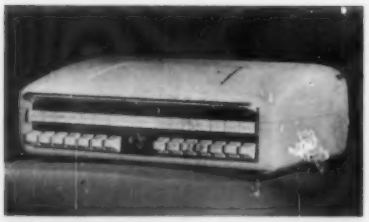
Tabulating Punch

The "Keysort Tabulating Punch" which automatically punches and tabulates quantities and amounts of up to 10 digits in Keysort cards is shown above. It is said to be capable of punching and reading two quantities into a card while simultaneously printing them on a detail tape and accumulating the amounts for totaling. The machine is available on a rental basis from Royal McBee Corp. For further information circle reader service card Number P-3.

Electrographic Recorder

Pictured above is a new recording system designed to receive messages automatically and assemble the electronic impulses into printed characters at the reported speed of 30,000 a second. Some applications of "Electrographic Recording," according to the manufacturer, Burroughs Corp., are in labeling or stripping operations, digital computer output systems, teletypewriting and facsimile. Circle reader service card Number P-1.

Intercom System



New loudspeaking intercommunication system which the manufacturer says is compact, quiet and handsomely styled, is shown above. The "Key-municator" has been transistorized to eliminate crackling noises. It consists of master units (above) and remote stations. Master units can be connected to any combination of 12 master or remote stations and expanded in blocks of 14 stations. Remote stations have three bars, two talk-listen bars for communication with two different master stations, and a "privacy" bar to eliminate noises. Manufacturer is Stromberg-Carlson. Circle reader service card Number P-2.

Electrostatic Copier

New electrostatic copying machine is designed to make positive enlargements of microfilmed records for only a few cents a print. Known as the "Copytron," it reportedly enlarges microfilm 14 to 16 times and simultaneously prints the enlargement on standard size sheets at the rate of four a minute. The machine will also make enlarged offset plates. It uses reel, strip or card mounted microfilm. Manufactured by Charles Bruning Co., Inc., Copytron is 45 inches high and occupies 53 x 32 inches of floor space. Circle reader service card Number P-4.

Send-receive Unit

Shown above is a new electronic send-receive unit which reportedly transmits photographs, or printed material in a matter of seconds. Telephone circuits or microwave pick up electrical impulses and relay them to an identical receiving machine which can return corrected material in the same manner. Known as "Electronic Messenger," the unit is manufactured by Electronic Communications, Inc. Circle reader service card Number P-5.

Data-Flo System

A new addition to the Underwood line of data processing equipment is the Data-Flo System which was designed originally for the banking industry. Included in the system are tape operated electric typewriters with tape input and output, program control and totalizers for the purpose of accumulating proof totals. The equipment is controlled externally by use of plug-board wired control panels. An important feature is its ability to detect missorts through its sequence checking ability. Check reader service card Number P-7.

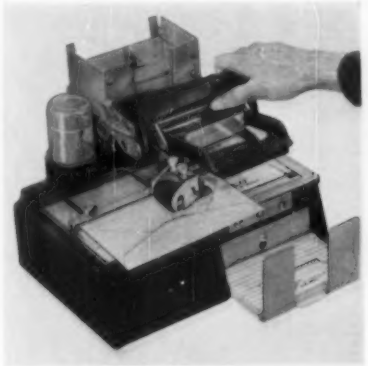
Automatic Typewriter

The automatic typewriter shown above features a large-capacity record roll that reportedly can store up to 250 average-sized lines of copy. The "Model 5605 Selector Auto-typist" can hold 10 to 20 complete letters, depending upon length, and individual letters can be selected one at a time. Manufactured by American Automatic Typewriter Co., the machine is 30 inches wide, 32 inches deep and 35 inches high. Circle reader service card Number P-9.

Xerographic Cameras

Mark III (above) and Mark IV are two new xerographic cameras which can copy larger original documents than was possible with older Model 1218 Xerox (R) cameras. The new cameras are designed primarily to reduce outside documents to the 12 x 18 size of an offset paper master. They feature larger copyboards, improved lens and lighting systems and larger focal plane areas. Manufacturer is Haloid Xerox, Inc. Circle reader service card Number P-6.

Automatic Addresser



Better prints from paper address slips, higher addressing speeds and simpler operation—these are reportedly the features of this new automatic addressing machine which uses the spirit transfer process and does not require a skilled operator. When the handle is pulled, the roll automatically moistens and moves the envelope into printing position. Hand and foot operated models are manufactured by Master Addresser Co. Circle reader service card Number P-8.

Speedy Teletypewriter

This super-speed teletypewriter unit prints 750 words a minute—is reportedly 10 times faster than standard message-printing equipment. Simultaneously, it punches coded holes on the message tape for use as a permanent record or for re-transmission to other points. It was developed for the U.S. Army by Kleinschmidt Laboratories to send messages to widely scattered mobile units in the event of a nuclear war. Future commercial uses include telegram transmission, stock market quotes, weather reports, and data processing applications. Circle reader service card Number P-10.

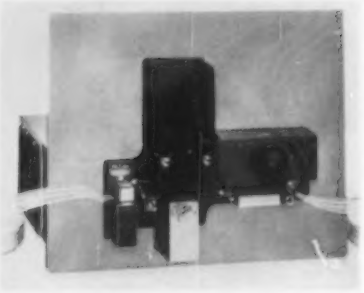
Electric Eraser

"Auto Erase" is a portable, electric eraser which runs on two standard flashlight batteries which will last for six months. It reportedly erases ink, pencil and typewriter impressions, dirt spots and fingerprints without affecting the paper or smudging carbon copies. Manufacturer, Ellendale Associates, says the principle of the eraser is "speed instead of pressure." It is designed to remove single letters without affecting the writing on either side. Separate erasers are used for ink and pencil erasures. Circle reader service card Number P-11.

Heavy Duty Burster

A heavy duty burster, the above machine is said to simultaneously burst 22,000 forms an hour, trim margins and stack forms consecutively. Although the machine can be made to handle form lengths from 3 to 11 inches, it will be sold to burst only a specified length. The manufacturer, Autographic Business Forms, Inc., states that a single form length simplifies construction and operation of the machine and makes it capable of long run bursting at high speeds without breakdowns. Circle reader service card Number P-13.

Strip Tape Reader



The new "909" is designed to read information on perforated tape strips into digital data computer systems at speeds up to one thousand characters a second. The machine will stop in .2 milliseconds and will read first character after the stop 3 milliseconds after starting time. The transistorized unit will read any tape including oiled yellow teletype tape, and 5, 6, 7, or 8 level tapes with Sprocket Channel. Suitable for rack or console mounting it is manufactured by Potter Instrument Co. Circle reader service card Number P-15.

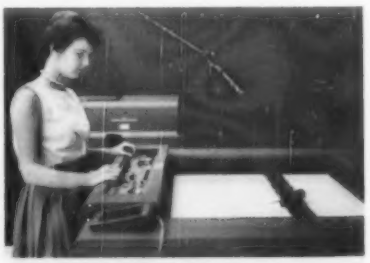
Addressing Machine

Now on the market is an addressing machine designed for handling short runs on small lists at a low cost. As the material to be addressed is hand-fed into the machine, the "Model 10" performs master card feeding, addressing, ejecting and stacking functions automatically. No hand lever or foot pedal operation. A friction wheel feeds copy from 3 x 5 inches to 11 x 14, into contact with a micro switch that cycles the machine. An automatic feeder is also available. Masters are made on electric typewriters. Manufacturer is Scriptomatic, Inc. Circle reader service card Number P-12.

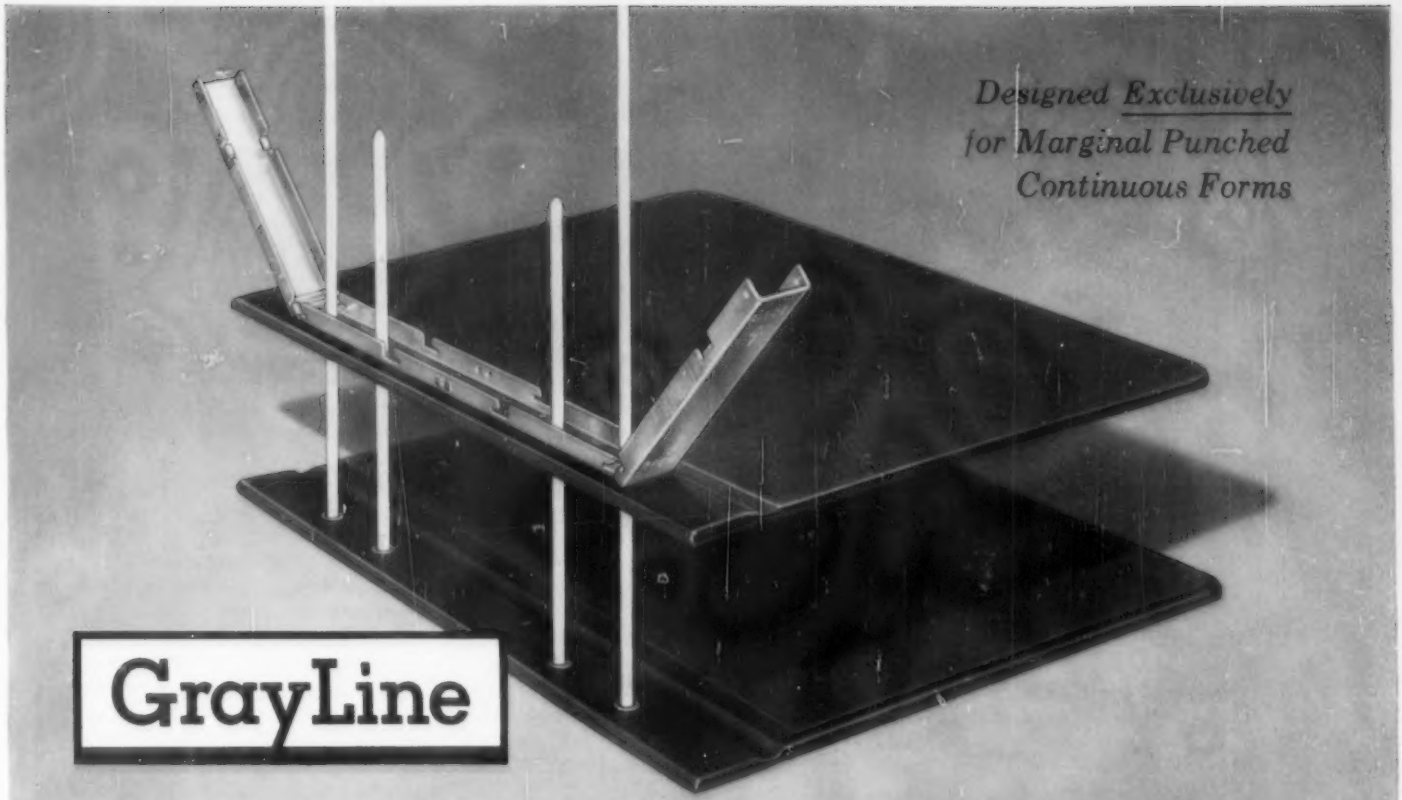
Tape Transceiver

Above is an "Automatic Send-Receive Set" designed to run at more than a hundred words a minute. It punches, transmits and receives tape; types; sends and receives page copy, or simultaneously transmits or receives messages and perforates tape. Manufacturer is Teletype Corp. Width is 36 inches; height, 39 inches; depth, 18½ inches, and keyboard projection, 4¼ inches. Circle reader service card Number P-14.

Electronic Charting



Pictured above is a "Dataplotter," new electronic machine which digests and interprets data produced by modern digital computers and automatically converts it into more meaningful graphs, curves and mechanical drawings. It will accept any size paper up to a maximum of 30 x 30 inches. Speed varies with distance between successive points, but average point plotting speed is up to 50 points a minute; line plotting speed, 25 lines a minute. A vacuum system provides wrinkle-free positioning of papers. The machine is manufactured by Electronic Associates. Circle reader service card Number P-16.



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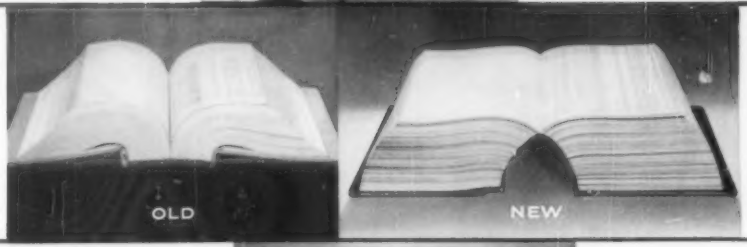
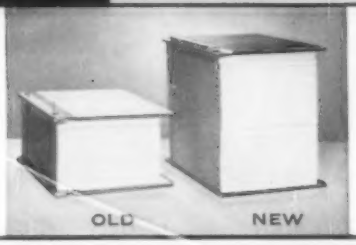


READ EASIER

Sheets lie flat. No hidden entries . . . no wasted margins.



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For More Information Circle Reader Service Card No. P-64

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Address _____

City _____ Zone ____ State _____

MB 10 Our usual office supply source is _____

Stripping Device

The "Quick-Stripper," a new device to remove plates and cards from Addressograph frames, is reportedly two to five times faster than hand separation. An unstripped frame is inserted face down at the top of the Quik-Stripper which performs the separation job, deposits the cards and plates into a waste basket and sends frames into a hopper. Manufacturer is the Addressing Machine Company of California. Circle reader service card Number P-17.

Pre-Bursting Decollator

New pre-bursting decollator is designed to separate the various parts of multi-copy forms just before bursting. In operation, as one part of the form goes through the burster, the carbon falls to the floor and the remainder of the form is refolded by the decollator for further use. Used when it is not practical to separate forms as they come from the writing machine, the device holds a full size 12-inch pack of forms with a maximum size of 19¼ inches wide and 14 inches long. Manufactured by The Standard Register Co., the machine functions at the same speed as the burster that powers it. Circle reader service card Number P-19.

Microfilm Camera

Removal of guesswork and repeated color "step tests" in microfilming different colored documents is said to be a function of this new precision microfilm camera. The camera has a built-in volt meter which can be adjusted to compensate for variations in light intensity of different colors. A color "step test" film strip with settings for colored documents comes with each camera. Documents can be filmed at 150 paper feet per minute, a fifty per cent increase in micro-filming speed according to the manufacturer, Remington Rand. The camera is called "Transportable Film-a-record Model 8.1." Circle reader service card Number P-21.

Tape-To-Card Converter

A new tape-to-card converter, said by the manufacturer to be one of the most versatile and economical on the market is now available for inter-coupling to a key punch. The removable plugboard feature of this converter allows instant re-programming for other procedures. Known as the "C749," the converter has a plugboard matrix which permits converting of tapes. When tapes are not being converted, the card punch may be used for manual key punching. The device is manufactured by Systematics, Inc. Circle reader service card Number P-18.

Offset Duplicator

This new high speed offset systems duplicator is designed to eliminate all but two manual operations: a change of masters and a flip of the starting lever. The rest of the functions which were previously done by hand are directed by a program control unit which delivers the exact number of copies dialed by the operator. The machine can turn out four jobs a minute, and up to 9,000 copies an hour. Manufacturer is A. B. Dick Co. Circle reader service card Number P-20.

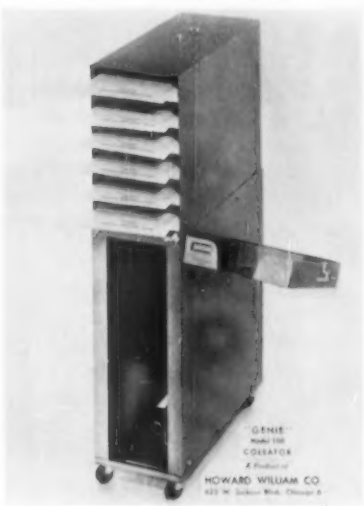
Copy Machine

Because of a new spray process, "Copycat" reportedly takes only 12 seconds to make sharp copies of printed, written or drawn material. According to the manufacturer, Copycat Corp., the new machine is "the world's fastest copying machine." It can be used for a month without a change of developing agent, does not need warming up, and runs with little attention. Copycat comes in two sizes: for copies 9 inches wide by any length, and for copies up to 14 inches wide by any length. The machine can be used as a desk top model or mounted on a wall. Circle reader service card Number P-22.

Control Panel Cabinet

A new retractable door has been added to the "Storaway" cabinet which is used for storing control panels and other machine room materials. Other features of the Storaway are said to include adjustable shelves, inset label holder with a 3 x 5 inch card for identifying contents, plated shelf dividers, a work surface of plastic laminate, and Stainless Steel trim. Manufacturer is Tab Products Co. Circle reader service card Number P-23.

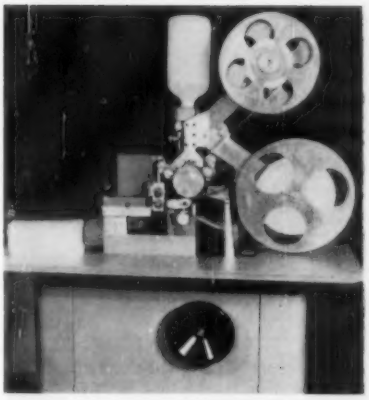
Automatic Collator



New "Genie" collator is designed to gather sheets from 5½ x 8½ to 8½ x 14. It has six bins, each with a capacity of 2 inches of paper, and can gather from 2 to 6 sheets in a set. Genie is 43 inches high, 9⅛ inches wide, and 21 inches deep. Manufacturer is Howard William Co. Circle reader service card Number P-24.

High-Speed Addresser

"Rotastrip," a high-speed addressing machine, can be used for making magazine and newspaper labels on a dick strip at 30,000 an hour—a speed reportedly three to five times faster than other printers on the market today. It uses a hectograph impression typed on a tab card and the imprint is comparable to one made by a metal stencil, according to the manufacturer, Midwest Automatic Control Co. Circle reader service card Number P-25.



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For More Information Circle Reader Service Card No. P-65

Visual Control Board

"Rol-a-chart" is said to present a completely new concept in visual control boards. According to the manufacturer, entries are made directly on the rotating, transparent, plastic sleeve with a marking pencil and erased with a cloth. The board, built of steel, provides 8 square feet of scheduling space, yet occupies only 4 feet of wall space. Check reader service card Number P-26.

Tab Card Sets

The manufacturer of new "Tabsets" claims one writing will provide both tab cards and carbon copies so that all tab card data will be on hand at the time of transaction, and transcription errors will be reduced. A product of Shelby Salesbook Co., Tabsets come with an exclusive "thumb notch" carbon removal feature. Tab cards are standard 51 or 80 and 90 column sizes. Sets come in two-color printing, consecutive numbering, colored stocks or bound form.

According to the manufacturer, the basic advantage of a Tabset is that it eliminates other source documents in that the tabulating card becomes the original document. This means that the source data can be quickly checked with the punched information when a question of accuracy arises. Circle reader service card Number P-27.

Photocopy Machine

This portable photocopying machine boasts a low price tag—$85 for the manually operated model and $105 for its electrically driven counterpart. The unit weighs 14 pounds, has a maximum copy surface of 11 by 15 inches, and will copy from all colors. It is said to be ideal for all copying, including bound books. No darkroom is needed. Known as the "Genco Challenger," it is produced by General Photo Products Co., Inc. Circle reader service card Number P-28.

IBM Brings Out Its 7070— A Completely Transistorized Computer in the Intermediate Price Field

The New IBM 7070 electronic data processing system brings a completely transistorized computer to the intermediate price field. Transistors have resulted in a one-third cut in installation and housing costs, yet, according to IBM, the 7070's arithmetic speed is several times faster than other computers in the intermediate price field. It executes an average addition in less than a ten-thousandth of a second.

IBM claims that valuable computer time is saved by overlapping machine operations, and that by using two tape channels, the 7070 is able, while computing, to read or write magnetic tapes at the rate of up to 125,000 characters a second. Also, it can handle simultaneously several new high-speed 400-card-a-minute readers and 250-card-a-minute punches. Four files of fifty magnetic disks can be included in the system, providing for random access storage of 24-million digits, any one of which can be located and altered in a split second. The 7070 has an immediate access high-speed memory of 50,000 to 100,000 digits held magnetically in tiny ferrite cores.

Programming, a substantial cost item in computer operation, is reduced by as much as 90 per cent, says IBM, by the use of a comprehensive library of programs offered by the manufacturer as part of the system.

The IBM 7070 data processing system is based on a modular design. A user may initiate his system with high-speed punched card input and output and build to multiple tape and disk file operation. IBM claims the 7070 is particularly adaptable to commercial applications as it is the first transistorized system permitting simultaneous batch accounting and in-line processing. Reported rental costs range from $12,000 to $28,000 a month.

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Is there an executive in your organization who should be reading MANAGEMENT and BUSINESS AUTOMATION and isn't? All decision-making executives who OK the *purchase* or *use* of office automation equipment and supplies should be on our list.

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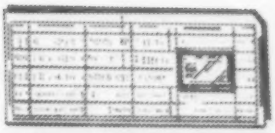

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NEWS

NBFA Holds 13th Annual Conference

The 13th Annual Convention of National Business Forms Associates was held at the Arlington Hotel, Hot Springs National Park, Ariz. The three-day conference, which opened on Monday, September 29, featured a number of seminars with particular emphasis on systems and procedures, and data processing operations.

Seminar leaders were William Charlton, Curtis Publishing Co., Fort Lauderdale, Fla., from which the monthly digest, "Business Forms—USA" originates. F. J. Ring, first president of the NBFA, serves as full-time secretary and treasurer.

Fireoved

former president of the Systems and Procedures Association; Dr. G. Herbert True, assistant professor of marketing at the University of Notre Dame and vice president of Institute of Visual Research, Inc.; Victor Snyder of Bonnar-Vawter, Inc.; W. Mason Beekley, Business Forms, Inc.; Ross Thompson, Consolidated Business Forms Co.; and M. H. Krueger and G. R. Walker of C. E. Sheppard Co.

The NBFA was organized in 1945 with only six charter members. Today the association has offices in more than 125 cities in the United States and operates in Hawaii, Puerto Rico and Cuba.

Current President is E. W. Fireoved, Chairman of the Board at Girard Business Forms Co. Association headquarters are in

AMA Survey on R & D

According to a recent survey conducted by the American Management Association, budgeted expenditures for research and development in 1958 are up an average of four per cent over last year. More than 800 companies took part in the AMA study.

Of the 24 industries covered, 18 showed an increase in budget for R & D ranging from 2 to 26 per cent. The latter increase was in transportation equipment. Greatest reduction in the six industries showing a decline was the construction machinery industry, which had a 15 per cent drop in R & D.

Dr. Phillip R. Marvin, manager of AMA's Research and Development division, declares that a look behind the figures indicates an attempt is being made to offset cutbacks by exercising greater selectivity in choice of projects, and through operating economies.

Computer Runs on Verbs

A method for using a limited vocabulary of English verbs to instruct computers—which would mean that the average businessman could refer his computational needs to the machines in his own terms—has been developed jointly by Remington Rand and the United States Air Force Materiel Command.

The new method is known as the Air Materiel Command Automatic Compiler (AIMACO). At first it will use thirty verbs, but future objectives point to a more general use of the English language—which will replace the laborious task of manual translation from English to machine language, one of the bottlenecks in electronic data processing.

AIMACO employs the basic concepts of Flow-matic, an automatic program technique developed by Remington Rand. The basis for the new system has been machine tested, is now reportedly in successful limited use, and is expected to be in general operation at major Air Materiel Command activities by the end of 1958.

Controller Conference

The 27th Annual National Controllers Conference will be held from Oct. 19-22 at the Chalfonte-Haddon Hall in Atlantic City. Feature of the conference will be an Office Machine Manufacturing Industry Conference headed by James Lillis, controller of Burroughs Corp. Vice chairman of the session is R. S. Laing, controller, National Cash Register Co. The session will be devoted to problems associated with the growing tendency toward leasing equipment.

Speakers will include C. V. Boulton, treasurer, International Business Machines Corp., and E. V. McDonough, controller, Pitney-Bowes, Inc.

A General Manufacturing Industry Round Table will be held concurrently, with Kenneth C. Sandridge, assistant controller, Blaw-Knox Co., serving as vice chairman.

Other conference subjects will include depreciation, direct costing, personnel development, records retention and corporate financing.

Electronics Institute

Current developments in automatic data processing systems will be evaluated by management personnel attending The American University's Fifth Institute on Electronics in Management in Washington, D. C., from Nov. 3-7.

Institute faculty members and leaders in the automatic systems industry will speak at the session.

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IT'S A PORTABLE. Weighs only 6 pounds, is flashlight battery operated, needs no carrying case. Ready to go to work at the flick of its switch . . . anywhere.

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Two Top Sales Appointments at IBM

Smith

Jones

International Business Machines Corp. recently announced the appointment of McLain B. Smith as vice president and general manager of the data processing division and member of the Corporate Management Committee. Smith, who had been vice president and assistant general manager of the division, succeeds L. H. LaMotte, executive vice president. LaMotte will continue as a member of the committee and will exercise general management responsibilities.

New assistant general manager of the division is Gilbert E. Jones, manager of marketing and service for data processing.

Both Smith and Jones have held top sales posts in IBM's data processing division, the company's largest, located in White Plains, N. Y. Smith had previously been in charge of IBM's Federal Government business in Washington, D. C. Jones' previous assignment was sales manager of the data processing division.

Burroughs Fills District Sales Posts

Jones

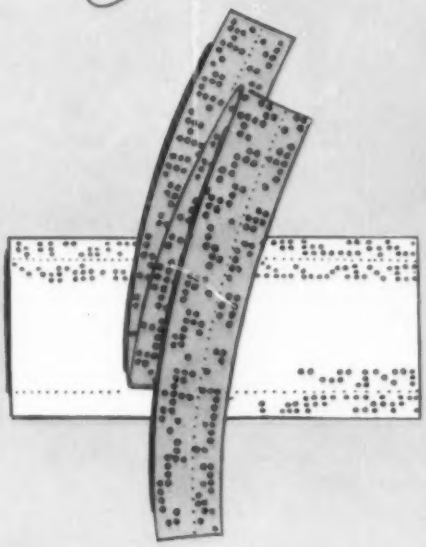
Hoge

New district sales offices in Atlanta, Ga., and Denver, Colo., will soon be opened by Burroughs Corporation's ElectroData Division.

Claggett A. Jones, a data processing veteran, will head division sales and service activities in Atlanta, and Charles V. Hoge, a former sales representative, will take over in the Rocky Mountain area.

Establishment of the two offices will bring the division's total of district and regional sales headquarters to 22.

Are Your Filing Methods As Fast as Your Machines?



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Ask the man from Acme
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ACME VISIBLE RECORDS, Inc., Crozet, Virginia

We are interested in filing

- ☐ Tapes (approx. length)_____
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- ☐ I.B.M. Cards

_____ (Approx. number of records)

☐ Have representative call. Date_____ Time_____

Company_____ Attention_____

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For More Information Circle Reader Service Card No. P-71

Feature subjects scheduled for 1959 issues

BUSINESS AUTOMATION IN GENERAL . . .

Social Aspects and Consequences
Union Attitudes
Regrooming the Executive Staff
Investment Factors
Training New Operating Personnel
Executive Control of Business Forms
The Executive's Role in Business Automation
Proper Housing of Equipment
Implications of Operations Research
Programming Problems
Electronic Communications
Business Automation Overseas

SPECIFIC BUSINESS OPERATIONS TO BE COVERED . . .

Order Writing
Payroll Accounting
General Accounting
Auditing
Budgeting
Invoicing and Billing
Accounts Receivable
Accounts Payable
Cost Accounting
Statistical Reporting
Forms Design and Control
Business Forecasting
Personnel Record-keeping
Addressing and Mailing
Copying and Duplicating
Filing
Microfilming
Inter-office Communicating
Inter-city Communicating
Engineering Computing
Data Reduction
Production Planning
Inventory Control
Material Control
Sales Analysis
Operations Research

ADDITIONAL SPECIALIZED OPERATIONS . . .

Utility Billing
Reservations Handling
Depositor Records
Subscription Handling
Actuarial Computing
Loan Accounting
Dividend Accounting
Premium Billing

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Air Force is Automating

A mobile computing system designed and constructed by Remington Rand was recently accepted by the Air Force for use at its Rome, N. Y. Air Development Center.

The equipment consists of a high-speed electronic computer with a system providing a technique for controlling electronic warfare devices. It is housed in two semi trailers—the computer section of the equipment in one, and the projection display in the other. Air conditioning and heating facilities in each trailer allow operations under widely varying climatic conditions.

Also automating in other areas, the Air Force recently installed a Univac file-computer to process the huge volume of statistical data at the Rome Air Force Depot.

AMA Conference

Ways of reducing waste and improving services in the office will be outlined at the American Management Association's annual office management conference at New York's Statler Hotel, October 22-24. Several hundred office executives are expected to attend.

A new concept in office automation—the "total systems" approach to data processing—will be explained by five executives of the Carborundum Co., Niagara Falls, N. Y. They will describe the firm's 10-year program for automating its basic data processing. Other panels will discuss costs and values of office operations, and management's responsibilities for profit improvement. Businessmen will also hear other companies handle problems common to all office executives.

New Annual Award

A new annual "Price Waterhouse Award" will be presented by Price Waterhouse and Company to the Systems and Procedures Association member who authors the best article printed in the association journal.

NMAA Systems Conference

The Fourth Electronics Business Systems Conference, sponsored by the Western division of National Machine Accountants Association, will be held in Seattle, Wash., on October 30 and 31.

Some of the subjects to be discussed in the field of mechanized and electronic accounting include electronics in the immediate future, training for automation in colleges and universities, and working with management in the adoption of electronic data processing systems.

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This production dynamo has nuArc's specially designed reflector and powerful 75 Amp automatic arc lamp, producing a point source light, thus eliminating undercutting—assures short exposures and perfect plates every time. Fast positive no-error vacuum seal is accomplished by nuArc's exclusive one-piece molded "live rubber" blanket which literally hugs flat and plate.

Takes up no more space than an ordinary office desk (40" x 50" floor area, 36" high). See your dealer or write for Bulletin 500 TODAY.

Cat. No. RP40 ..... $695.00
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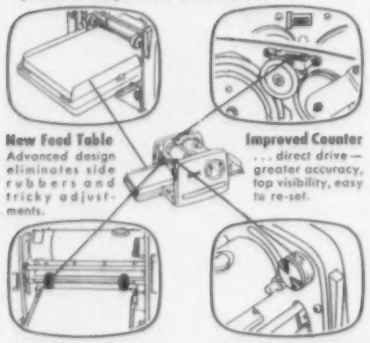
1493 Authorized Dealers across the U. S. A. and Canada offer these amazing new Conquerors . . . now better than ever with these important operating improvements, the result of Heyer's 55 years of duplicator know-how:



New Feed Table Advanced design eliminates side rubbers and tricky adjustments.

Improved Counter . . . direct drive — greater accuracy, top visibility, easy to re-set.

Adjustable Feed Wheels grip paper at outer edges, give positive performance.

Feed Tension Control assures non-skip feeding — thin papers to post cards.

Many other outstanding features such as Copy Positioner Control, Nylon Gears, Visible Fluid Supply, Sure Fluid Control (no pumps), and Automatic Start-Stop on electric Conquerors offer a combination that's unmatched. Don't confuse them with photocopy machines . . . Conqueror Duplicators print 110 clear, sharp copies *per minute* . . . in 1 to 5 colors *at once* . . . of anything typed, drawn or written on a spirit master . . . *at a fraction of a cent per copy!*

MODEL 70 —Hand Operated with all features except electric drive..... $214.50*

MODEL 76A-Electric, Automatic Start-Stop (illustrated)..... $299.50*

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Circle Reader Service Card No. P-75

Competition Offers $4,000 in Prizes

Prizes totalling $4,000 will be awarded next year by the Office Executives Association for papers covering various problems of office organization and management.

The Management Center competition, aimed at providing an interchange of ideas and information on scientific office management, is open to anyone from businessmen to professional writers. The papers which can be submitted from April 1, 1958 to March 31, 1959, will be judged on information rather than writing ability.

Winners in each of the following eight categories will be awarded $500: data processing; record administration, copying and duplicating, communications, interiors, personnel administration, machines and equipment, and methods and procedures.

An additional $50 will be awarded authors having their papers printed commercially, and $25 non-commercially.

Competition rules may be obtained from the association, 530 Fifth Avenue, New York 36, N. Y.

Stromberg Promotes 3

Three appointments in the electronics division of Stromberg-Carlson were announced recently: Harold P. Field to director of marketing, Brig. Gen. William L. Bayer to director of planning, and Howard S. Gleason to manager of the Electronic Control Systems plant in Los Angeles.

Five Wilson Jones Executives Move Up

Behr

Five sales executives at Wilson Jones Co. recently moved up to new positions, according to M. W. Borders, president of the firm.

Jack Behr, formerly western sales manager, is now general sales manager. New western sales manager is Harold Gould who was central division sales manager for several years. Ted Myers, a former divisional manager at Atlanta, Ga., has been transferred to New York in the capacity of eastern division sales manager. The duties of regional manager in Atlanta have been assumed by George Robinson, and newly-appointed New England regional manager is Roy Martin.

Gould

Myers

Ads Feature Mathematics

New IBM advertising series is designed to increase public awareness of the contribution of mathematics to man's progress, and to encourage mathematical careers among young people.

Advertisements in the "Mathematics Serving Man" series tell the story of great milestones in man's mathematical learning, from his earliest efforts at counting, through such advanced concepts as Von Neumann's theory of games.

Some of the objects used to illustrate the series are measuring devices used by the Egyptians in building the pyramids, early counting devices and the world's first mechanical calculator.

Recent Appointments

Frank C. Mullaney, director of engineering for Control Data Corp., announced four appointments to the firm's computer engineering staff. They were: James E. Thornton, Carl E. Koehler, Dean M. Roush and James D. Harris . . . Marcell N. Rand, executive vice president and general manager of Remington Rand, announced Dr. Howard T. Engstrom's return to the Univac division as vice president and director of marketing of Univac scientific and military systems . . . Joseph A. Resca has been named New York district sales manager for the Burroughs Corp. ElectroData division . . . Raymond E. Lee, president of TelAutograph Corp., has named Frank Fredericksen as sales manager of the new Teleprinter division . . . Autographic Business Forms has announced the appointment of Wilbur A. Frey as assistant sales manager in charge of national accounts.

Burroughs Goes Overseas

First overseas shipment of its quarter-million-dollar 205 electronic computing system was announced recently by Burroughs Corporation.

The 13-ton "brain" was packaged in four giant steel cases when it left Los Angeles on a freighter bound for Capetown, South Africa. It will be installed by the South African National Life Assurance Company.

ANYONE can produce clean, sharp offset copies quickly and easily on the DAV-A-MATIC
AS SIMPLE AS 1 2 3
Model 239-S
Eight models for every type and size of organization

DAV-A-MATIC

solves all SHORT-RUN and GENERAL DUPLICATING problems

Truly Sit-Down Operation

Davidson's revolutionary DAV-A-MATIC, first Offset Duplicator researched in the laboratory of modern business and industry, simplifies General, Short-Run and Systems Duplicating!

1. ***Attach Masters Instantly!*** New Master-Minder grips and releases masters without locks or gadgets. Ideal for use when adding or eliminating parts of text!
2. ***Change Masters Automatically!*** New APC attaches and ejects masters while machine is running—in a matter of seconds!
3. ***Speed up Systems Duplicating!*** New Universal Systems Feed combines automatic suction and hand feeding of systems forms, records, communications!
4. ***No messy cloths, no ink-stained fingers!*** Just press the lever while machine is running and stay spic and span all day long—operators love it!

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Saves Time! Reduces statement addressing in the average office up to 66⅔%.

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Enables Your Ledger Cards to Write! In addition to heading statements and collection notices you can also address direct mail, service follow-ups, shipping labels, bills of lading and other office forms . . . all from your ledger card file.

● Just type the name and address ONCE on the PRESS-ON MASTER PATCH. They're easily prepared in an ordinary typewriter . . . no special equipment required.

Print With The Model 60 Master Addresser | Machine Complete With Supplies For 500 Accounts **$70.00** Plus Fed. Exc. Tax

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Sit—soft, safe and posturally correct
6 adjustments

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Controllers Pick Hughes

Hughes

The Controllers Institute of America has named J. McCall Hughes as its new president. Hughes is vice president and controller of Mutual of New York. He succeeds James L. Peirce, vice president and controller, A. B. Dick Co., who becomes chairman of the board of directors.

Stuart W. McLaughlin, controller of West Virginia Pulp and Paper Co., was re-elected treasurer of the Institute. Also re-elected were Victor L. Persbacker, American Brake Shoe Co., assistant treasurer, and Paul Haase, managing director of the Institute, secretary.

Brussels Likes Computers

A report from an American exhibitor at the World's Fair in Brussels indicates widespread interest in computers among industry leaders in Western Europe.

Paul Dennis, assistant general manager of Bendix Aviation Corp. sent word from the Bendix computer exhibit at the exposition that Italy and Germany have shown keen interest in computing equipment that will provide shortcuts to problems in aircraft and guided missile programs.

Dennis said that major West German industrial plants—Dornier, Zeiss and Zahnradfabrik — are "very much interested" in electronic computing equipment and that Belgium has inquired about applications for a power utility and for the Belgian Air Force and military academy.

Queries on applications of the computer have been received by Bendix from all European countries attending the fair, said Dennis. A few of them—optical design, machine tool control, inventory control, and highway design.

Russian interest, according to Dennis, has been high, but inquiries to Bendix are shrouded in secrecy regarding applications.

Systematics President

Bruinsma

Theodore A. Bruinsma, general counsel and secretary of the McCall Corp., is the new president of Systematics, Inc., designers, manufacturers and marketers of special business machine attachments in the field of automation.

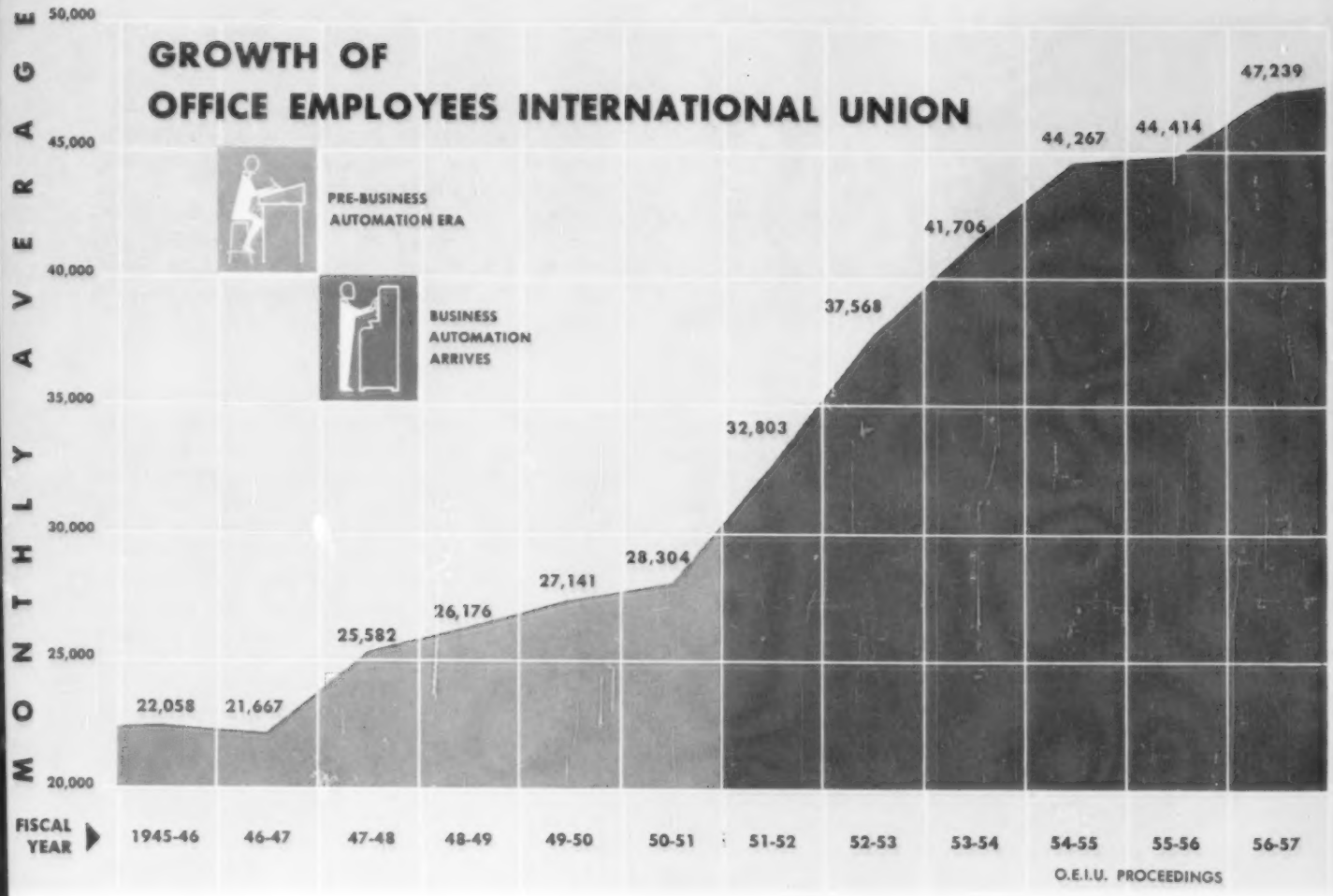
Bruinsma is a graduate of Harvard Law School, Harvard School of Business Administration, and a member of the American Bar Association.

Systematics, Inc., was founded in 1955.

Computer Symposium

Current developments in the fields of machine computation and data processing will be major subjects of discussion at the Fifth Annual Computer Applications Symposium at the Morrison Hotel in Chicago, from October 29-30.

The symposium will cover automatic programming techniques, learning procedure simulation, and applications of new data processors and computers. The first day session will emphasize business and management applications; the second, engineering and scientific applications.



Hoffa Continued

that all union personnel would be trained to operate the new electronic machinery.

The union, said Coughlin, would also insist that dislocated personnel not suitable for such training be given "other jobs within the company." "We are going to insist on attrition rather than layoffs as a procedure for elimination of personnel, and we are going to call for very substantial severance pay and pension practice."

By "attrition," Coughlin meant that the union would insist on bumpback provisions in layoff clauses. This means that employes who have been promoted from one job to another within the firm will be given the right to bump back in accordance with their seniority and qualifications.

While Coughlin's proposals may make excellent propaganda for a union campaign they could seriously handicap any company embarking on an extensive automation program. Selection of the right personnel for such a program is one of the keys to a successful installation and could hardly be done on the basis of union seniority alone.

Another highlight of the OEIU convention was the adoption of a maximum of thirty hours as the work week for office and clerical employes. The delegates urged that all local OEIU unions take strong positions in the negotiation of new agreements and renegotiations of old agreements to achieve this objective.

Waving the banner of a thirty hour week and proclaiming job security for the automated office, the OEIU could conceivably get quite a steamroller moving in the direction of the white collar workers—especially with Hoffa and his lieutenants furnishing the money and man-power. On the other hand, management might well knock the wheels from under the steamroller by taking time to educate the worker that automation is not a threat, but a promise of better things to come.

"For every isolated case of a worker actually losing a job due to automation in the office," says one leading executive, "there are thousands of examples where automation has provided additional jobs—and better jobs."

Says another—"Teamwork, with employes and management working together, will keep the office door closed to any union."

One thing is certain. The last remaining citadel of unorganized labor is about to be hit with a frontal assault. It should come as no surprise if the man leading the attack turns out to be labor's own little Napoleon, James Riddle Hoffa.

that far surpassed that of his employer. The man —Thomas J. Watson.

The United States Census Bureau can be credited with a leading role in developing the punched card era of accounting. In 1880 the bureau hired Dr. Hollerith, a famous statistician, as a special agent with the assignment of developing and analyzing census results. Realizing that the existing manual methods would outdate the census information before it could be compiled, Hollerith set out to find a faster system. Probably borrowing from the experiences of Jacquard and Babbage, he perfected a means of recording the census information in punched holes on paper strips, which would then actuate statistical machines.

After completing his census obligations, Dr. Hollerith left government service and secured patents on his system. He formed the Tabulating Machine Co. which, in 1911, merged with the Computing-Recording Co. This was the organization that had the good fortune to secure the services of one Thomas J. Watson. Its name was changed to International Business Machines Corp. in 1924.

The Powers Machine Co., which became the punched card division of the Remington-Rand Corp. in 1927, also had its beginning in the Census Bureau operation. James Powers, an English engineer, was employed for the 1910 census in the same capacity as Hollerith was for the earlier one. Powers developed a system similar to that of Hollerith and formed his own company in 1911.

The punched card brought about a new concept in accounting and soon entire business procedures were being built around its use and related machines. Speed, flexibility, and lack of dependence on an operator's productive and thinking ability—all of this appealed to management, and the card with the holes became the "high fashion" in the business office.

There were many who felt that key operated accounting machines were about to join the green eye-shade and quill pen as part of the historic past. But from the drawing boards came new ideas which enabled typewriters and accounting machines to accept tape and card input and create either or both as output. New areas of application opened up for equipment manufacturers, and the office began another great transition—from mechanical to electronics.

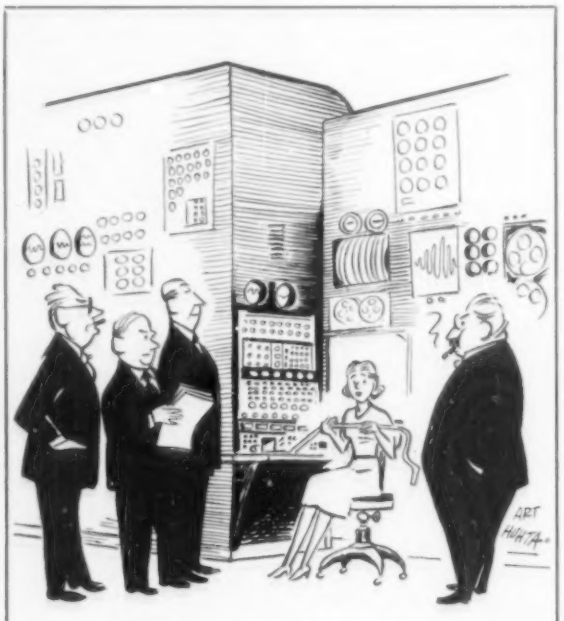
The new era brought rapid and fantastic developments. Machines were now equipped to make logical decisions and to store data for later use. Computers—large, small, or medium sized—appeared in abundance. Data processing—automatic, integrated, and electronic—became an indispensable word in the office vocabulary.

Another word appeared on the scene and gained general acceptance. The word, "automation," was first used to describe automatic machine operations in the factory and two men claim to have coined it—John Diebold, a management consultant, and Del Harder, a Ford Motor Co. vice president.

The term "automation" has created confusion in the office mainly because of the generous and often misleading definitions of the word. Simply stated, automation can be defined as "the transfer of all, or part, of repetitive jobs now performed by people, to mechanical and automatic methods."

Although the word is a product of the present electronic age, the actions it describes are a part of every past contribution to business machine history. Certainly Jacquard's loom was an example of automation.

What exciting event will write the next chapter in the evolution story of business machines? It's a good bet it will have to do with voice control over machines. For the one great problem in data processing, one that every generation of man has had to wrestle with, is the necessity to write, by hand or machine, before the machine can act. When oral language becomes the input for data processing systems, the day of complete office automation will have arrived.



"It says it wants to think about it for awhile."

Required Reading

If you haven't as yet found anything to smile about in your own computer program, here's a chance to take a busman's holiday in reading and get a guaranteed "belly" laugh. "The Joy Wagon" (Arthur Hadley, The Viking Press, $3.50) concerns Microvac—a miniature electronic computer who campaigns for the Presidency of the United States. Author Hadley's literary efforts may not qualify him as a computer expert, but his laugh-provoking "expose" of behind scenes politics on a national level has a definite tone of authority —no doubt generated by his experience as a White House correspondent for Newsweek and later as information director for the Stevenson campaign. Hadley's fictional candidate doesn't fare any better than his live one did, but the campaign produces several hours of humorous relaxation.

Frank M. Knox, a pioneer in the field of office cost and paperwork control, has spent many years trying to convince management that cost control in the office is just as important as cost control in the factory. And, with rising office costs eating into profits, business executives may finally be ready to listen. If so, "Integrated Cost Control in the Office" (Knox, McGraw-Hill, $7.50) will make interesting and profitable reading. A management consultant for more than thirty years, Knox has set forth in eleven chapters, a fairly simple program for establishing control over office costs. The book should prove particularly interesting to executives directly involved in an office automation program.

CLASSIFIED ADVERTISING

To make available to employers the growing supply of trained automation personnel, MANAGEMENT and BUSINESS AUTOMATION will accept classified advertising effective with the January 1959 issue. Rates are 75 cents a word with a minimum of $10.00 per insertion. Payment should accompany order. Allow 6 words if blind box number is used. Deadline: 10th of month preceding date of issue.

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EDITORIAL

We are proud to introduce MANAGEMENT and BUSINESS AUTOMATION —a magazine designed for decision-making management. It is the first publication to report exclusively on new ideas, developments, applications, results, and the human impact of business automation in all areas of commerce, industry, and government. This is our purpose, and though the task is recognized as a formidable one, we are humbly confident of success.

MANAGEMENT and BUSINESS AUTOMATION will be present wherever, and whenever automation makes news—looking over shoulders and onto drawing boards—watching for the spectacular accomplishments as well as for the less dramatic, but equally significant, developments. Of no less concern will be the economic, the human and the social aspects of automation.

MANAGEMENT and BUSINESS AUTOMATION will report its findings with speed, accuracy and clarity. But it will do more than report. It will provide management with the proper interpretive analysis of the far-reaching effects of business automation—introducing a vital third dimension to editorial coverage of the subject. The vagueness and generalities that have presented business automation to management in an air of mystery will not penetrate the columns of this publication.

The progress of automation will not be slow and orderly. At times it will be of an explosive nature. Yet, it promises to be the most dramatic upward extension of the American way of life in our age. Ours is the task of reporting and interpreting this progress. It is an obligation not lightly undertaken.

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